

Appendix 3: Maylands Growth Corridor Study: Stage 2 Scheme Concepts 1 & 2
Model Sensitivity Testing Report April 2016

**Maylands Growth Corridor Study
Stage 2 Options and Strategy**

**Scheme Concepts 1 & 2
Model Sensitivity Testing Report**

Hertfordshire Local Enterprise Partnership



Maylands Growth Corridor Study

Stage 2(b)

**Scheme Concepts 1 & 2 Model Sensitivity Testing
Report**

Quality information

Document name	Ref	Prepared for	Prepared by	Date	Reviewed by
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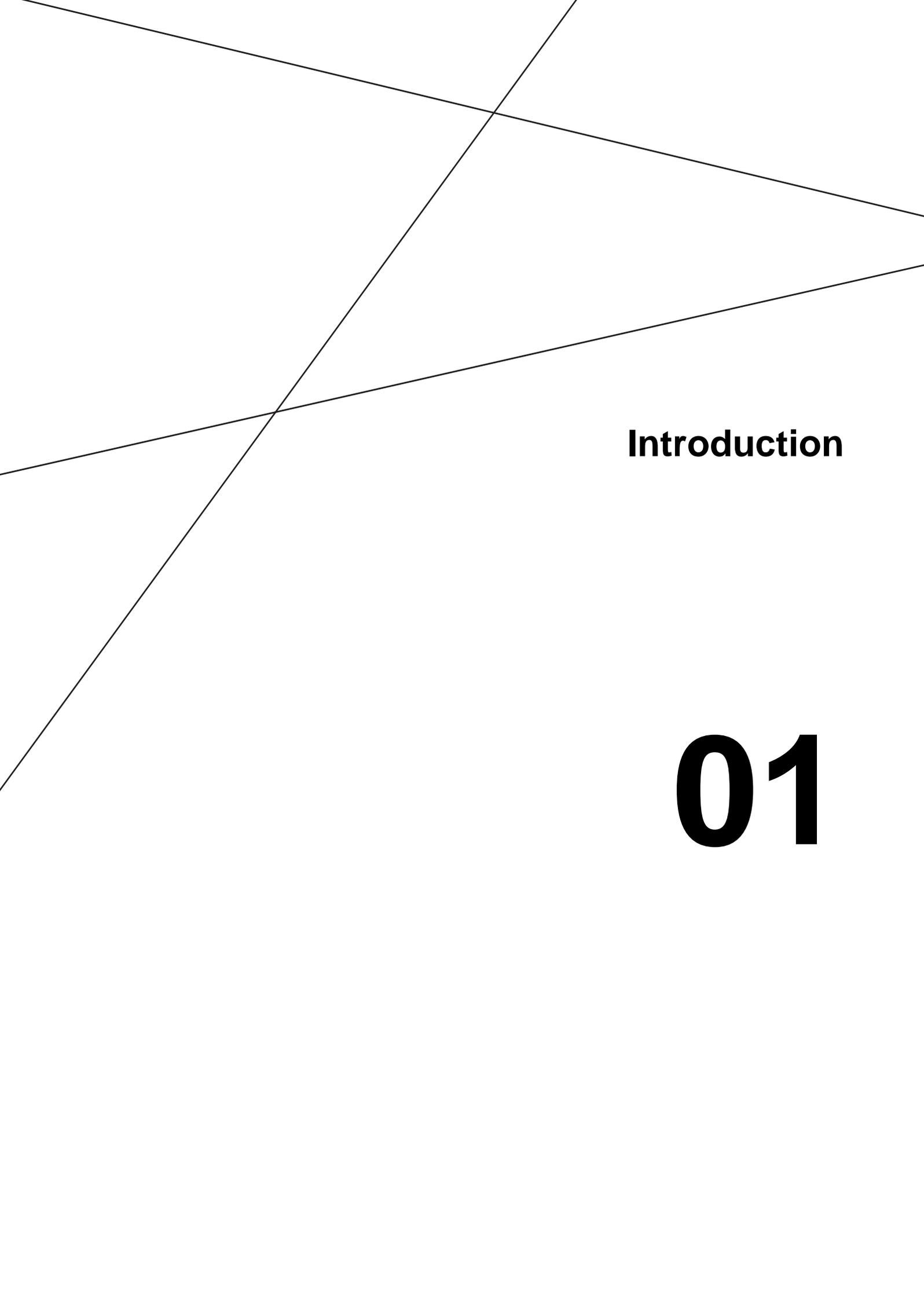
Revision history

Revision	Revision date	Details	Name	Position
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Introduction

01

1 Introduction

This section outlines the background to the modelling undertaken to support the study and the scheme concepts identified

Model Background

- 1.1 An existing Hemel Hempstead S-Paramics microsimulation model, developed for Hertfordshire County Council (HCC), has been made available for this study. The model was originally developed in 2009 with a base year of 2008. The model was subsequently updated locally for the town centre and Maylands Gateway areas. As part of these model updates, the base year was also updated using count data from 2013 and 2014.
- 1.2 For Stage 1 of the Maylands Growth Corridor Study, the model was updated further for the Maylands. This latest model update includes extending the network coverage to include M1 Junction 8 and finer network structure for the Maylands study area. The base year of the model was also updated to 2015. **Figure 1** shows the model extent of the model following the Maylands model update.

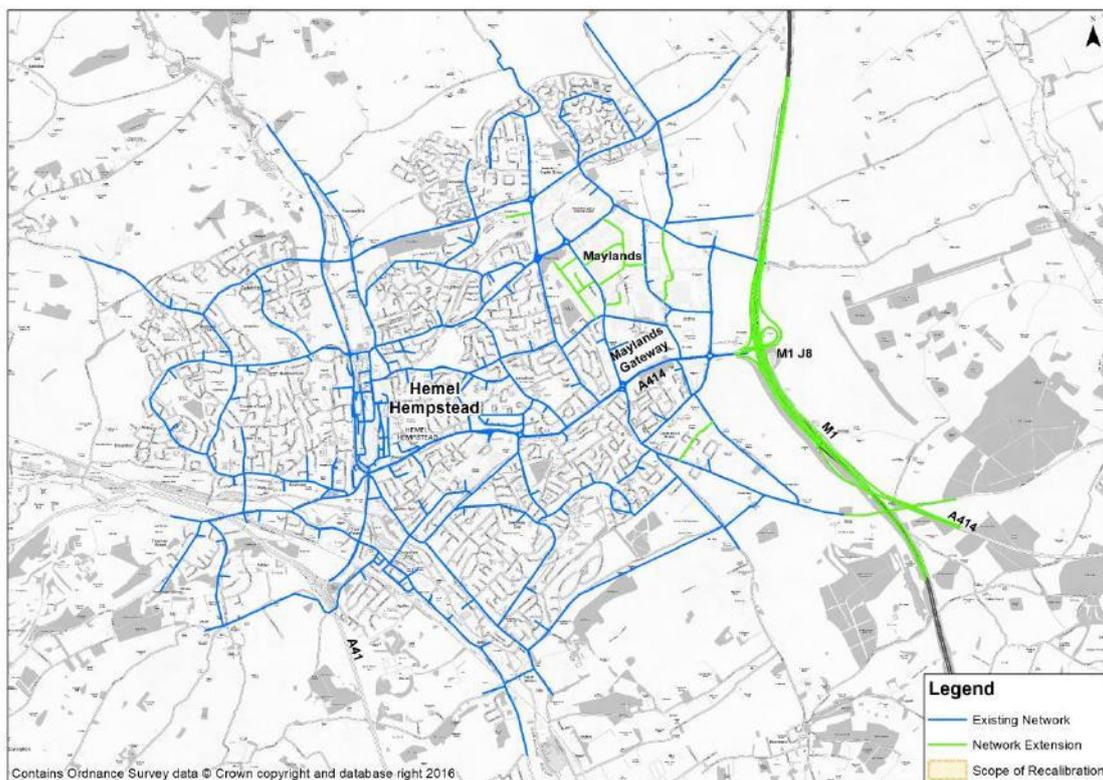


Figure 1 – Geographical Extent of the S-Paramics Model

- 1.3 The Maylands model update utilized the network wide parameters and trip demand distribution of the existing Hemel Hempstead model. As the demand data of the existing Hemel Hempstead model is based on the 2001 Journey to Work (JtW) census data, it should be noted that there are limitations to the Maylands model update that although the traffic flow level of the updated model might be representative of 2015, the trip demand distribution pattern has not been verified to represent the current traffic conditions.
- 1.4 It should also be noted that the performance of the model outside of the immediate Maylands area is beyond the scope of this study, but has been monitored at a high level to ensure the existing level of model performance is retained.
- 1.5 Detailed information on the model update for the Maylands area can be found in the Maylands Growth Corridor Study Stage 1(a) Report – Local Model Validation Report¹.

Scheme Concepts

- 1.6 A number of scheme concepts have been identified during Stage 2(a), comprising of a mixture of smaller-scale interventions to encourage modal shift (SC3, 5 and 6), a new link road (SC4), measures to improve the situation of lorry parking and routing (SC7) and improvements to bus services (SC8).
- 1.7 SC1 and SC2 comprise of much larger interventions with a particular focus on highway connectivity and reducing traffic congestion. SC1 would involve improvements in the vicinity of M1 Junction 8 and the A414 Breakspear Way – Green Lane roundabout. SC2 would involve the creation of a new north-south spine road, utilizing part of the existing Green Lane alignment, and linking the B487 Redbourn Road with the A414 and the A4147.
- 1.8 A range of SC1 and SC2 options have been identified which are shown in **Table 1**.
- 1.9 SC1a to SC1e were defined originally. An initial modelling exercise indicated that there was not a simple solution to address the issues identified. Modelling work indicated that in the short-term only SC1a and SC1e could partially address current congestion but would not provide a long term solution. In the longer-term option SC1b, SC1c and SC1d were considered more appropriate but did not entirely address the issues.
- 1.10 After an initial workshop held with Hertfordshire LEP and other key stakeholders it was agreed that SC1c was unlikely to be viable or deliver benefits and would therefore be discounted from further analysis.

¹ Maylands Growth Corridor Study, Stage 1a Report S-Paramics Model Recalibration, Local Model Validation Report (AECOM) (“*Stage 1a_Maylands Growth Corridor Study_LMVR_ISSUED 20160204.pdf*”)

- 1.11 S-Paramics micro-simulation of the previous options showed that options SC1b and d might deliver better performance, although it was envisaged that slight modifications of the design were worthwhile testing. Some additional options were devised, informed by the initial modelling, which could address the issues
- 1.12 As there is currently congestion occurring on routes within Maylands, such as on the A414 to the south and B487 to the north, poor north-south linkages between Woodhall Farm and Grovehill, vehicles using the country lanes that have lower capacities and potentially a significant amount of residential and employment development occurring to the east a significant scheme needs to be considered.
- 1.13 A number of alternatives have also been proposed:
- SC2a: Spine road connecting all parts of the proposed development, with links onto the A4147 Leverstock Green Road, A414 Breakspear Way and B487 Hemel Hempstead Road.
 - SC2b: Same as Sc2a except the northern spine road alignment runs closer to the M1.
 - SC2c: Same as Sc2a except the northern spine road follows along an upgraded Three Cherry Trees Lane.
- 1.14 A forthcoming masterplanning exercise to be carried out by the Crown Estate and local authorities will help define the exact alignment and composition of the spine road, however conceptually it is understood that a link road of some form will be provided between the B487, A414 and A4147.

Table 1 – Scheme Concept 1 and 2 Options

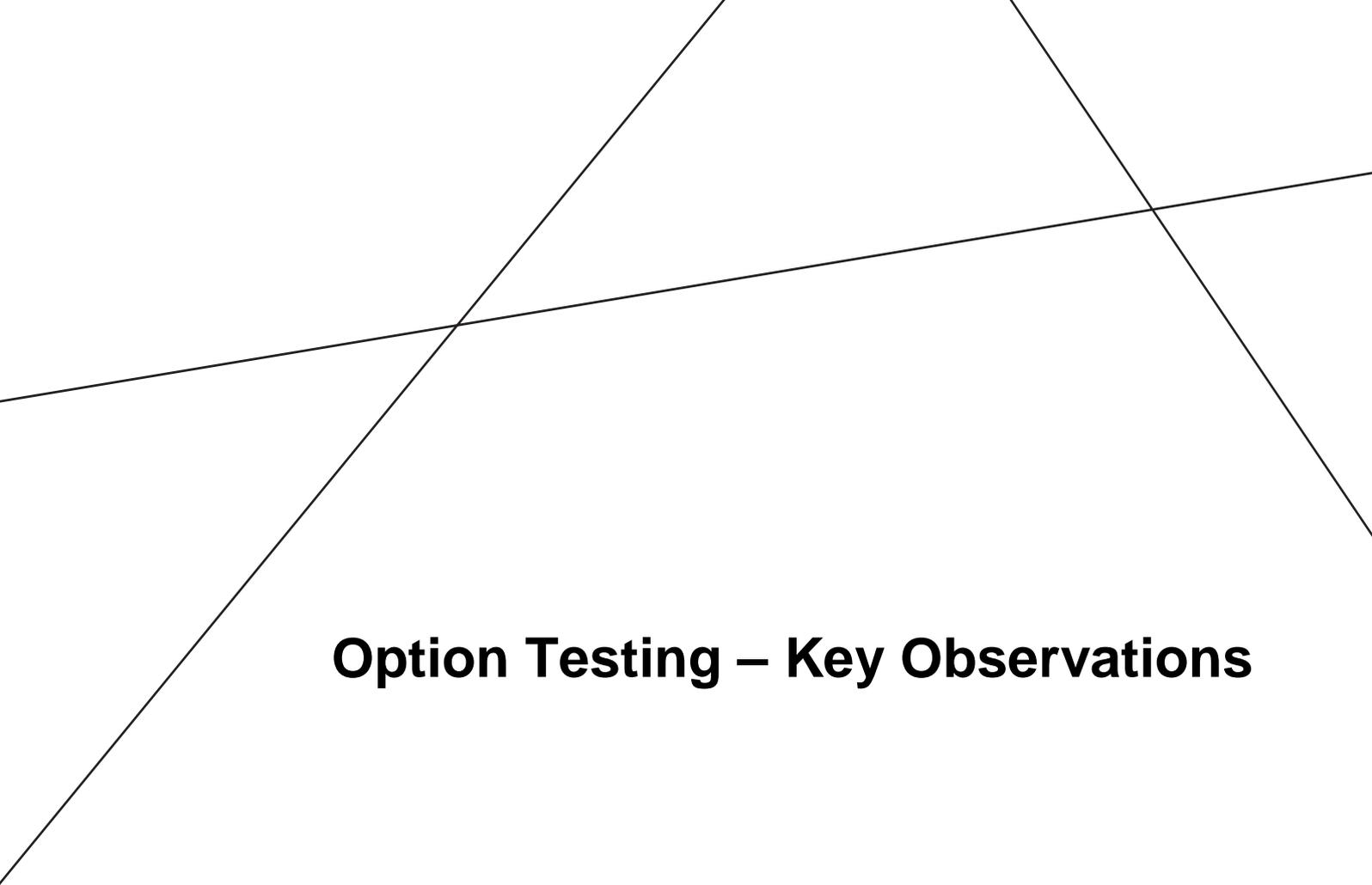
	Scheme Concept ID	Description
A414 Breakspear Way/Green Lane roundabout, M1 Junction 8	SC1a	Enlarged signalised roundabout with a 'hamburger' style through arm from the A414 eastern arm heading westbound, plus widening on the Green Lane (North) approach.
	SC1b	A compact grade-separated junction with northern and southern roundabouts on Green Lane linked by an over/underbridge crossing the A414, which will incorporate a shared use footway/cycleway, and the A414 running as a continuous carriageway through the junction.
	SC1b (II)	Compact grade-separated junction with northern and southern roundabouts on Green Lane linked by a skewed overbridge crossing the A414, which will incorporate a shared use footway/cycleway, and the A414 running as a continuous carriageway through the junction.
	SC1c	A reconfigured M1 J8 with new Maylands eastern gateway access to the north
	SC1d	A reconfigured M1 J8 with new Maylands western gateway access to the north
	SC1e	Full signalisation of the existing roundabout plus widening on Green Lane (north & south), Breakspear Way eastern arm and the circulatory
	SC1f	Large lozenge signalised junction with access links north and south
	SC1g	Large roundabout and Green Lane flyover

East Hemel Hempstead development	SC2a	North-South Spine Road: B487-A4147 via Green Lane and A414 – northern link with HGV weight limit
	SC2b	North-South Spine Road: B487-A4147 via Green Lane and A414 – northern link with no weight restrictions in place
	SC2c	North-South Spine Road: B487-A4147 via Three Cherry Trees Lane, Green Lane and A414 – Three Cherry Trees Lane upgraded with new Nickey Line bridge and removal of width restriction.

1.15 Scheme proforma are provided in the **Appendix**.

1.16 SC1c was discounted early on the grounds that the use of land to the east of the M1 was not considered feasible at this time and that the alternative options showed greater promise in terms of addressing the issues.

1.17 To provide an early indication on the effectiveness of the Scheme Concept 1 and 2 options as identified in Stage 2(a), forecast year modelling was undertaken.



Option Testing – Key Observations

02

2 Option Testing – Key Observations

This section outlines key observations made from the sensitivity testing of the various SC1 options.

- 2.1 This section focuses on the individual performance of the different options considered to relieve the A414 Breakspear Way / Green Lane Junction.
- 2.2 S-Paramics modelling assessment has been carried out for each alternative which have been tested together with SC2c as it was considered as the preferred alternative to the East Hemel Hempstead North-South Spine Road.
- 2.3 The following model scenarios were tested in 2021 morning peak hour initially in order to gauge the potential of the scheme concept options:
- 2021 AM SC1a + SC2c
 - 2021 AM SC1b + SC2c
 - 2021 AM SC1b (II) + SC2c
 - 2021 AM SC1d + SC2c
 - 2021 AM SC1e + SC2c
 - 2021 AM SC1f + SC2c
 - 2021 AM SC1g + SC2c
- 2.4 For the scheme concept options that show potential to accommodate further growth, additional modelling tests were undertaken to gauge how these options perform in 2031 as well as during the evening peak hour.

Forecast Year Demand Growth Overview

- 2.5 **Table 2** shows the growth in dwellings and employment within Hemel Hempstead from 2015 to 2021 and to 2031; and **Table 3** below shows the matrix totals for the 2015, 2021 and 2031 models.

Table 2 – Planning Data Overview

	2015 to 2021	2015 to 2031
No. of dwellings	3,130	12,410
Employment (sqm)	52,030	278,680

Table 3 – Matrix Totals

	2015	2021	2015 to 2021	2031	2015 to 2031
Morning Peak	95,840	105,610	+10% (+1.6% p.a.)	123,990	+29% (+1.6% p.a.)
Evening Peak	99,560	106,390	+11% (+1.8% p.a.)	126,940	+33% (+1.8% p.a.)

2021 Do Minimum Scenario

2.6 To provide a point of reference for comparison, modelling for 2021 Do Minimum scenario was also undertaken. As might be expected, without mitigation works, the performance of the A414 corridor is predicted to worsen by 2021. Figure 2 and 3 below show model screenshots from the 2021 morning and evening peak hour models respectively. The locations of queuing are highlighted.

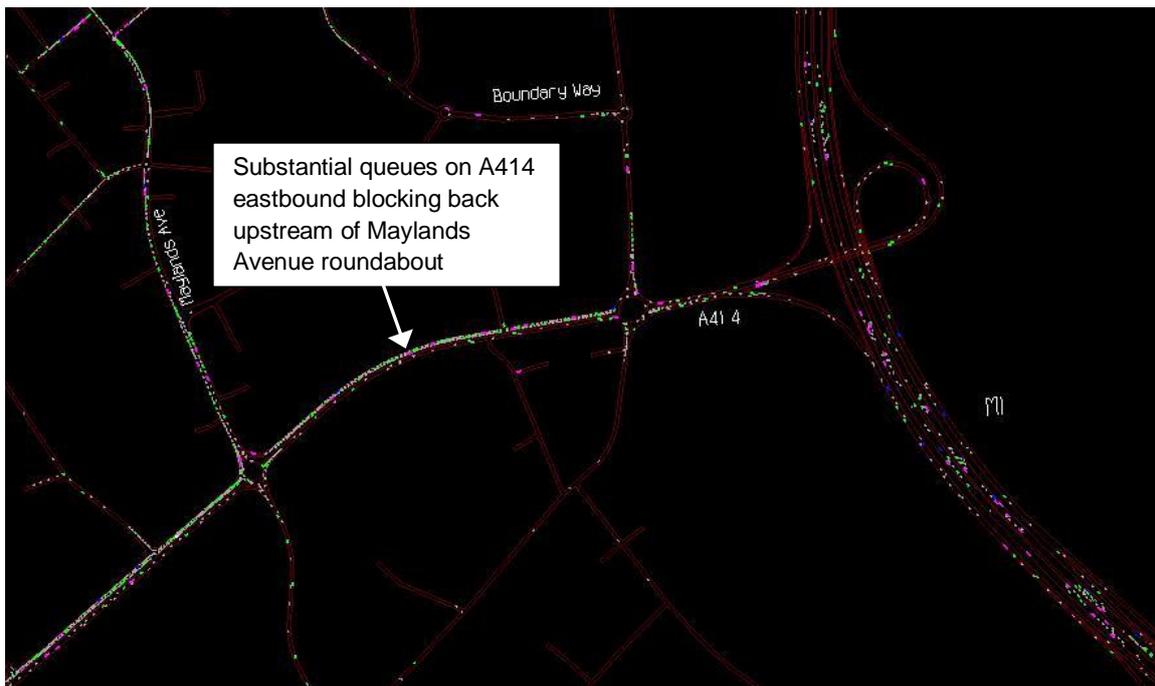


Figure 2 – 2021 AM Do Minimum

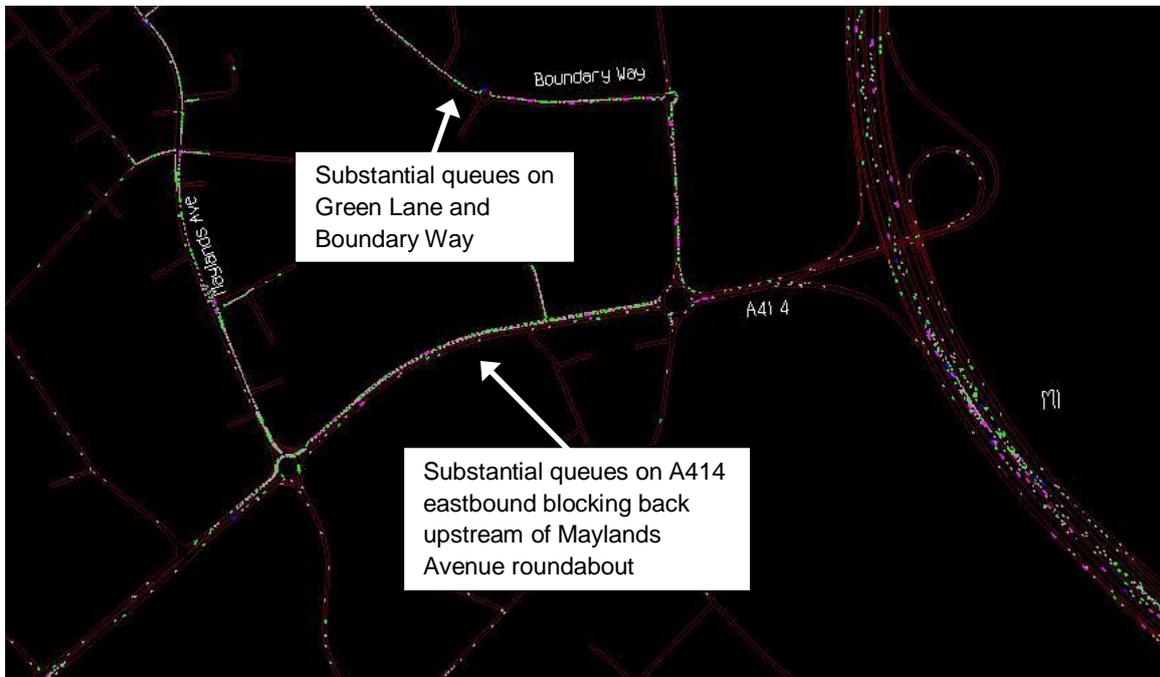


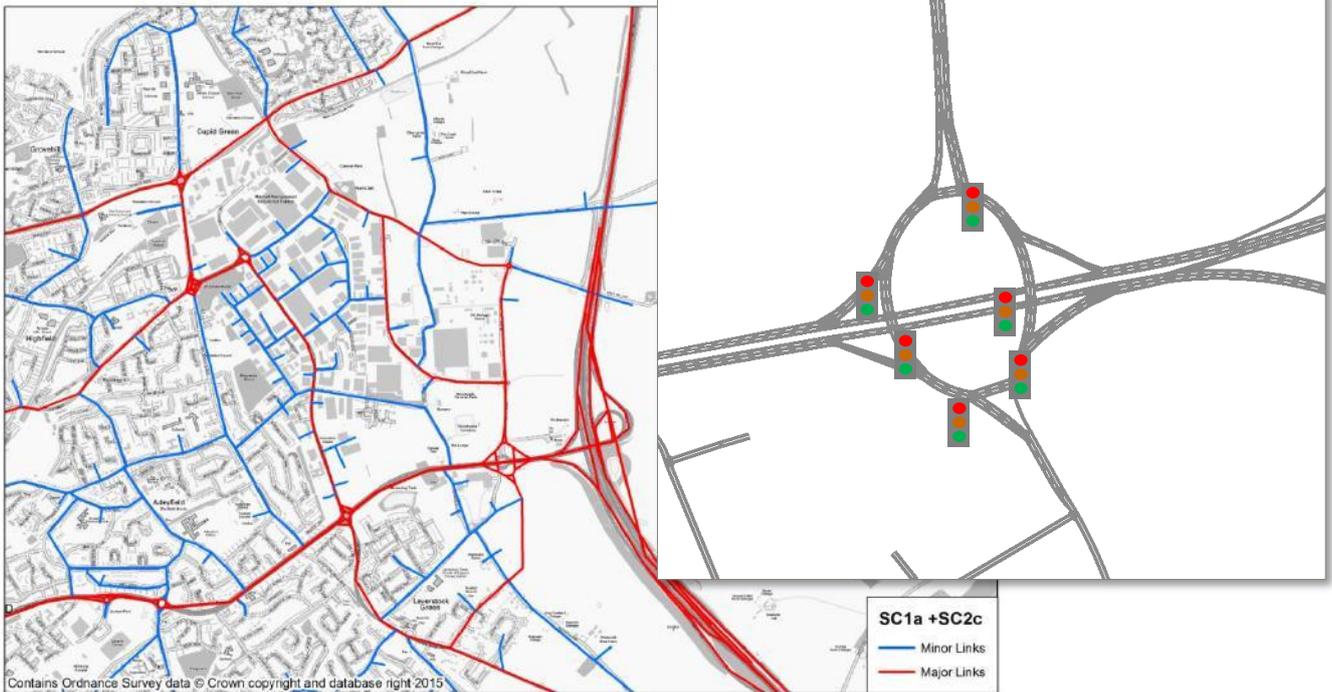
Figure 2 – 2021 PM Do Minimum

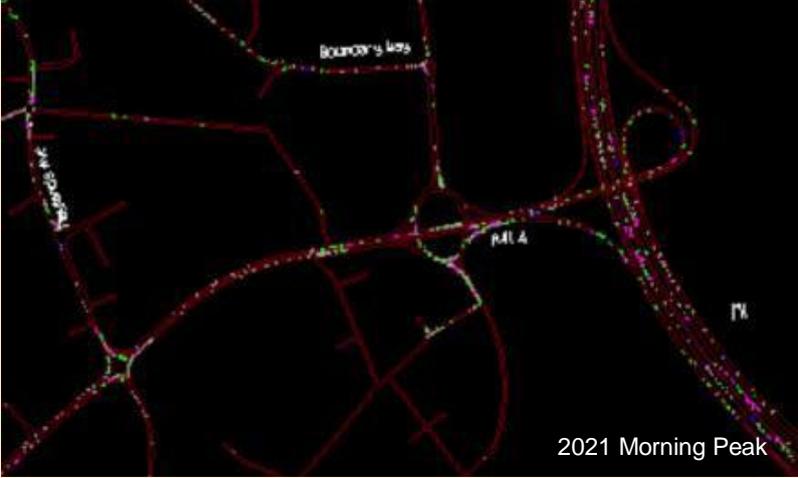
2.7 Equivalent testing of the 2031 Do Minimum scenario has not been undertaken at this time, as it is expected that the network performance will deteriorate even further however the model's performance will become overly sensitive to congestion.

2021 (and 2031) Do Something – key Observations

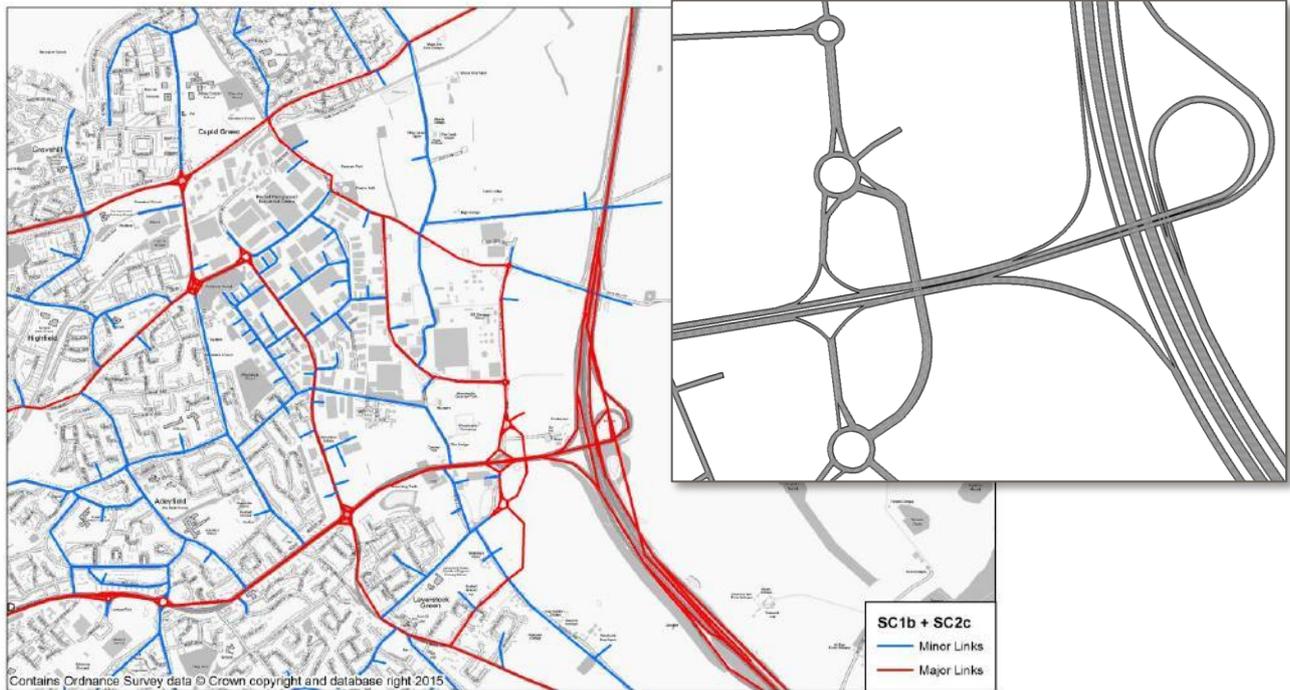
2.8 The following pages summarise the key observations from the 2021 sensitivity tests of the SC1 options. In some cases, where options perform well in 2021, additional tests in 2031 have been undertaken to consider whether or not the options still operate well in the longer term.

Scheme Concept Option	Description
SC1a + SC2c	Enlarged signalised roundabout with a 'hamburger' style through arm from the A414 eastern arm heading westbound, plus widening on the Green Lane (North) approach.
High Level Network	



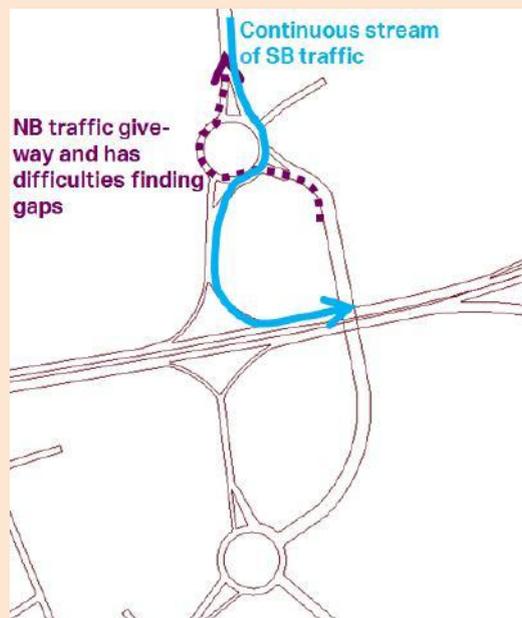
Key Modelling Observations
1. Stretched roundabout provides greater stacking capacity on the circulatory lanes.
2. The 'hamburger style layout' provides greater capacity for A414 movements.
3. Signalisation provides greater control on the operation of the junction.
4. Modelling shows that for 2021 morning peak hour, SC1a will operate with short queues on some approaches:


Scheme Concept Option	Description
SC1b + SC2c	A compact grade-separated junction with northern and southern roundabouts on Green Lane linked by an over/underbridge crossing the A414, which will incorporate a shared use footway/cycleway, and the A414 running as a continuous carriageway through the junction.
High Level Network	

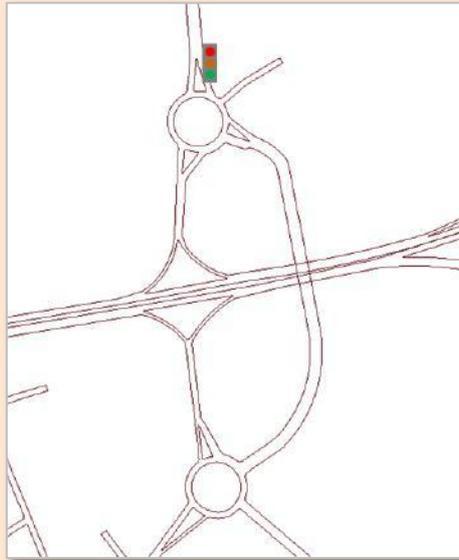


Key Model Observations

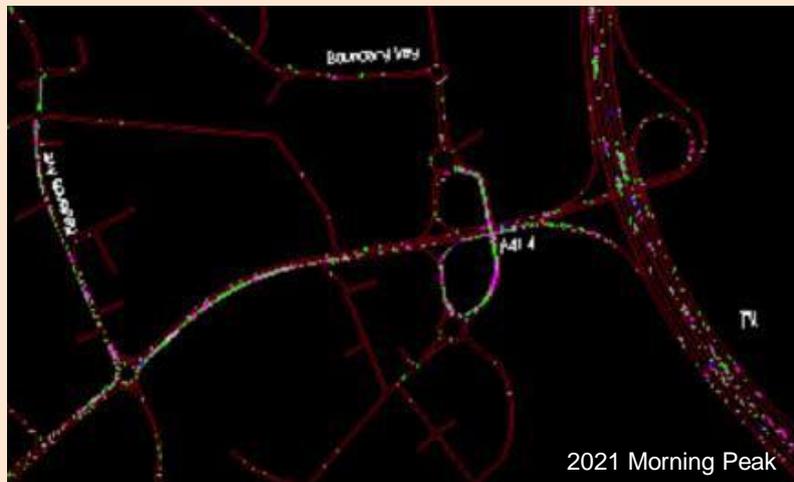
1. A414 straight ahead movements running as continuous carriageway through the junction which reduce delay for these east-west trips.
2. The modelling shows that for the northern roundabout, the stream of southbound traffic on Green Lane is continuous as there is no opposing traffic based on current modelling assumptions. As such, the northbound trips to the Maylands area have difficulties finding gaps to join the roundabout, resulting in long queues on the bridge link approach to the northern roundabout which was modelled to extend back onto the A414 westbound carriageway.



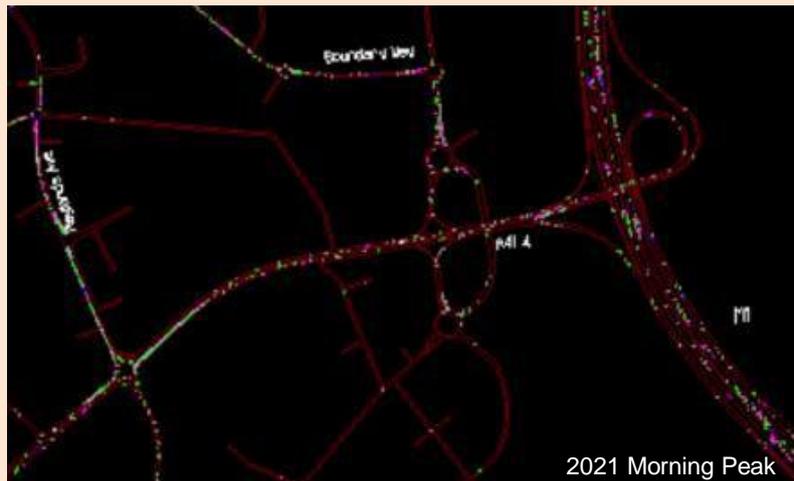
3. Pre-signal at the southbound approach arm for the northern roundabout to create more gaps for the northbound traffic to enter circulatory. This is not however considered to be a satisfactory solution to this scheme option's performance.



4. Modelling shows that for 2021 morning peak hour, the northbound queue on the approach the northern roundabout for SC1b (without signalisation of northern roundabout) will extend to the A414:



4. With the pre-signal for the southbound approach arm, more gaps are created for the northbound traffic, reducing the northbound queues, however queues could form on the Green Lane southbound approach:

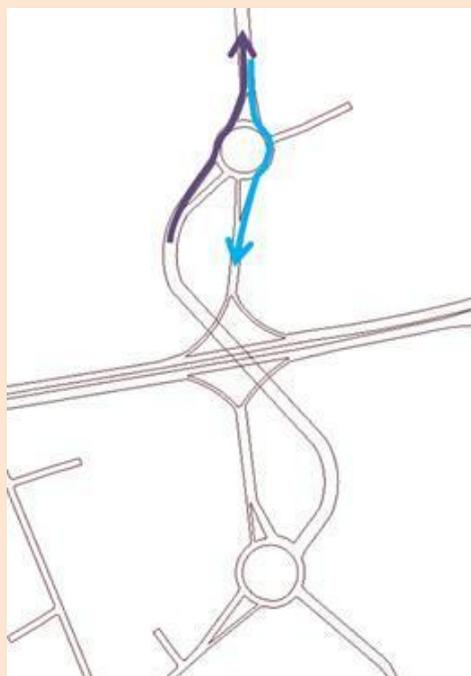


Scheme Concept Option	Description
SC1b (II) + SC2c	Compact grade-separated junction with northern and southern roundabouts on Green Lane linked by a skewed overbridge crossing the A414, which will incorporate a shared use footway/cycleway, and the A414 running as a continuous carriageway through the junction.
High Level Network	

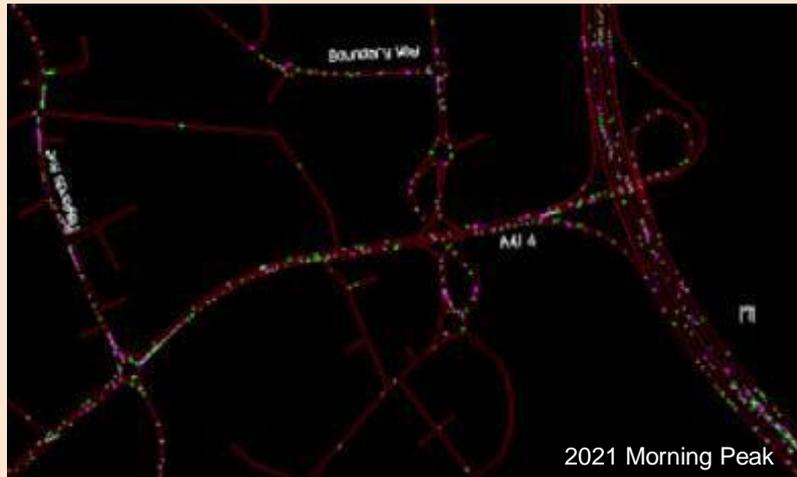


Key Model Observations

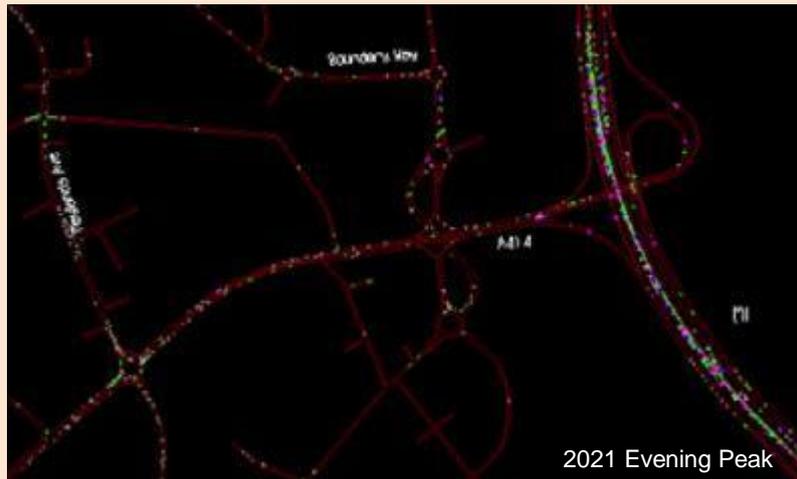
1. A414 straight ahead movements running as continuous carriageway through the junction which reduce delay for these trips.
2. Skewed overbridge removes the conflicting movements of northbound traffic to the Maylands area and southbound traffic to the A414 and towards the M1.



3. The modelling shows that for 2021 morning peak hour, SC1b (II) generally operates well:



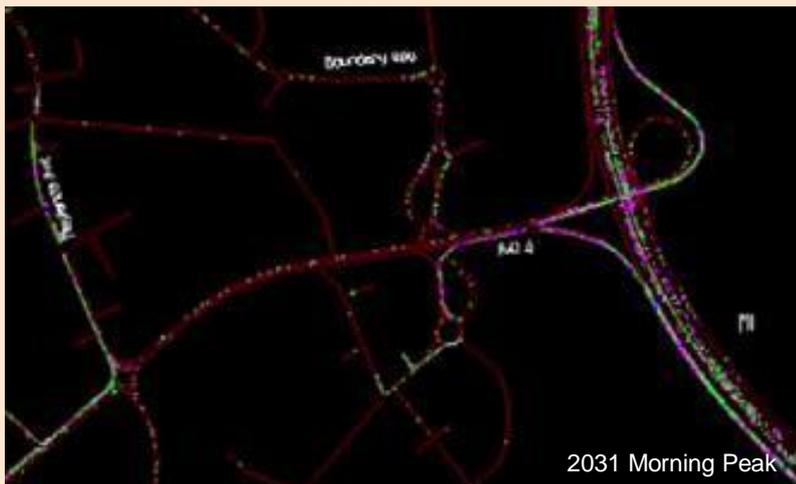
4. Further sensitivity test was undertaken to gauge how this scheme concept operates for the 2021 evening peak hour. The modelling suggests that SC1b (II) generally operates well for the 2021 evening peak hour:



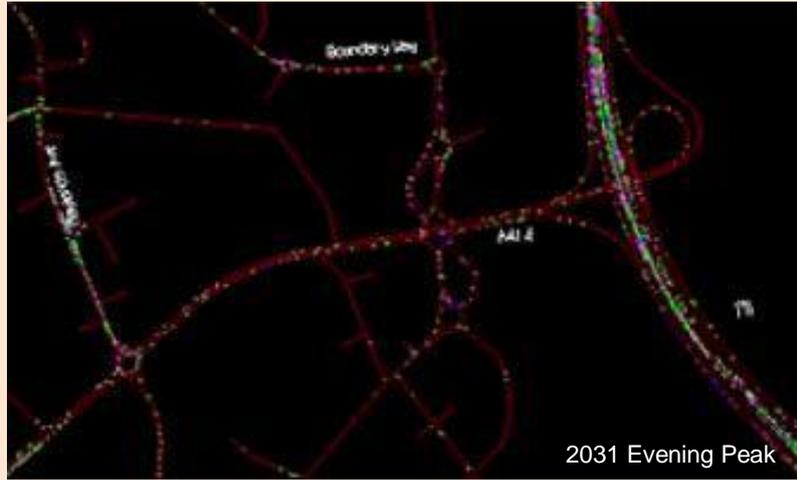
5. As the 2021 modelling suggests that SC1b (II) operates well, further 2031 sensitivity tests were undertaken to test how the scheme concept operates with greater demand growth.

For 2031 morning peak hour, the modelling shows that the A414 – Maylands Avenue roundabout is congested, and traffic travelling from the south towards the M1 could rat-run through Green Lane, causing conflicting movements at the southern roundabout for SC1b (II) and the southbound queues were modelled to extend to the A414 and beyond.

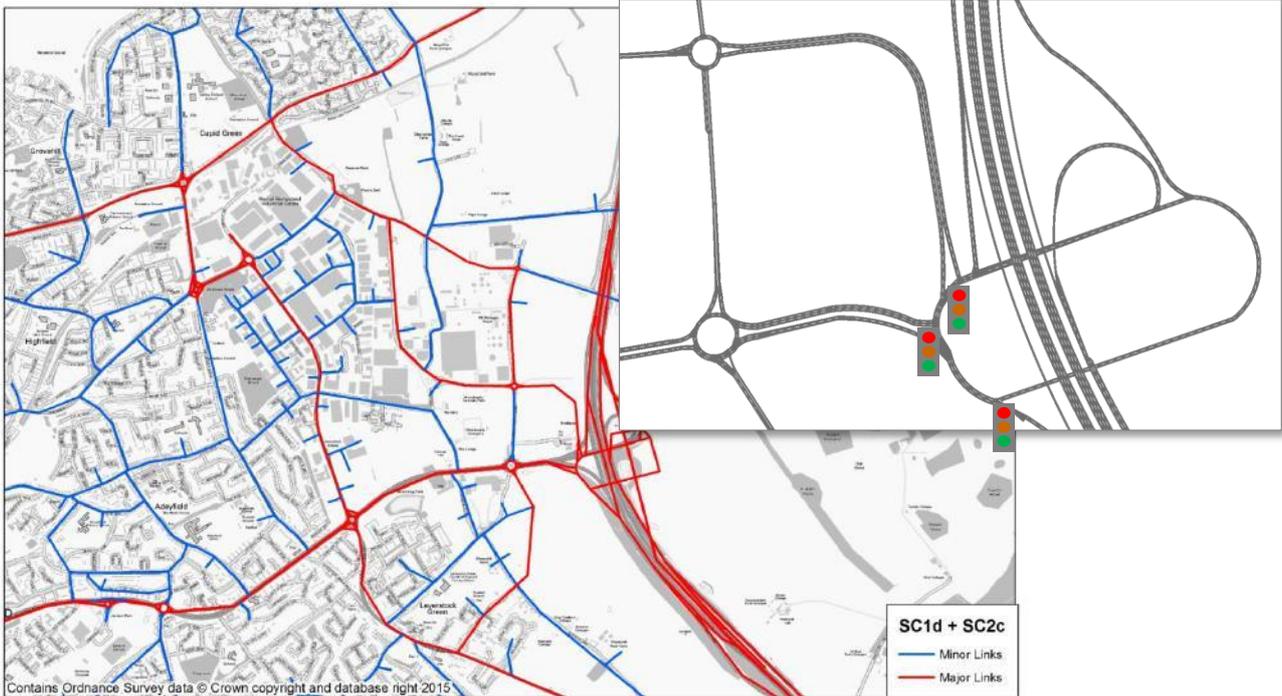
The rat-running can potentially be managed through traffic calming measures which may reduce the conflicts for the SC1b (II) southern roundabout.



For the 2031 evening peak hour, the modelling shows that SC1b (II) generally operates well.



Scheme Concept Option	Description
SC1d + SC2c	A reconfigured M1 J8 with new Maylands western gateway access to the north
High Level Network	

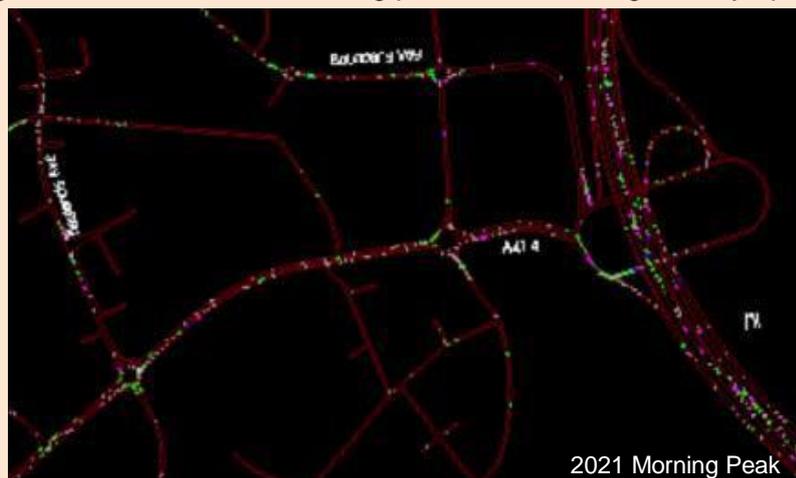


Key Model Observations

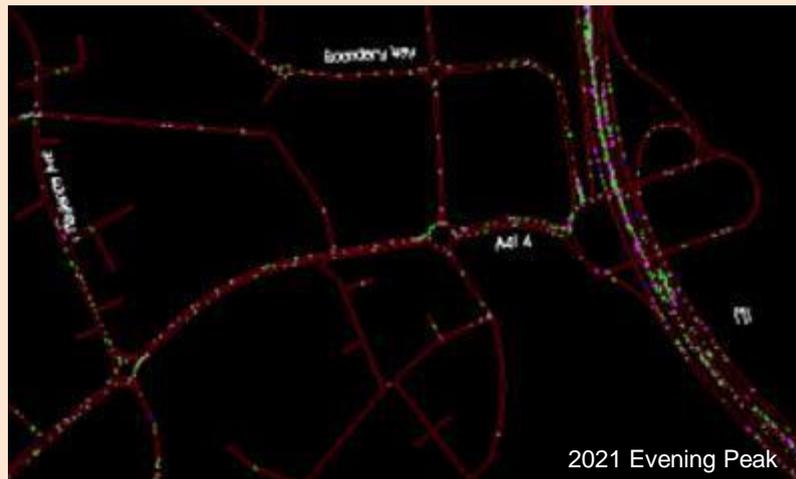
1. Direct access to the Maylands area via Boundary Way and Green Lane from M1 Junction 8.
2. Signalisation required to provide greater control on the operation of the junction.
3. There are ample stacking capacity on the southern section of SC1d to ensure the queuing on the queues on the northbound off-slip do not extend back to the main carriageway.



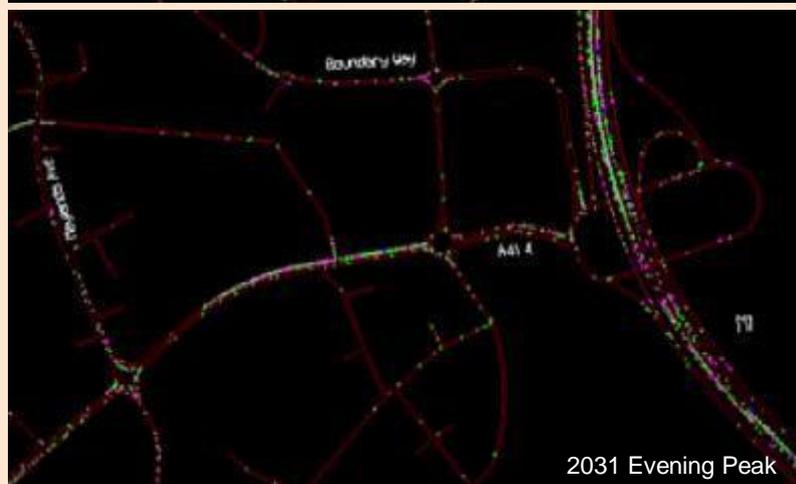
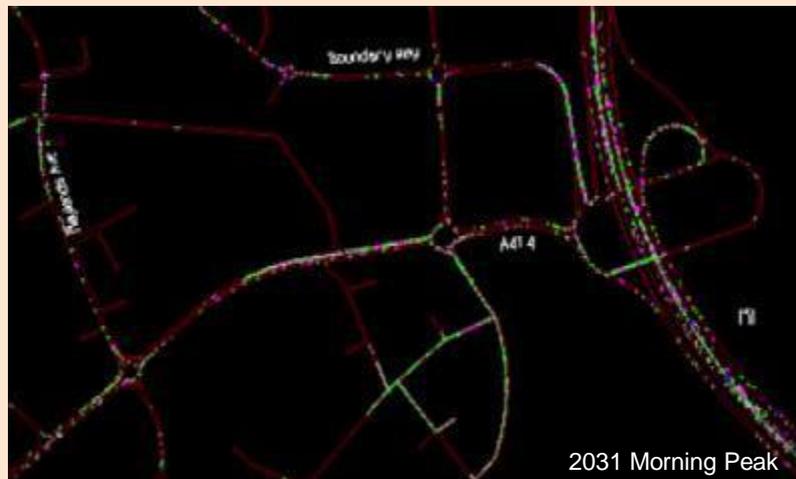
4. The modelling shows that for 2021 morning peak hour, SC1d generally operates well:



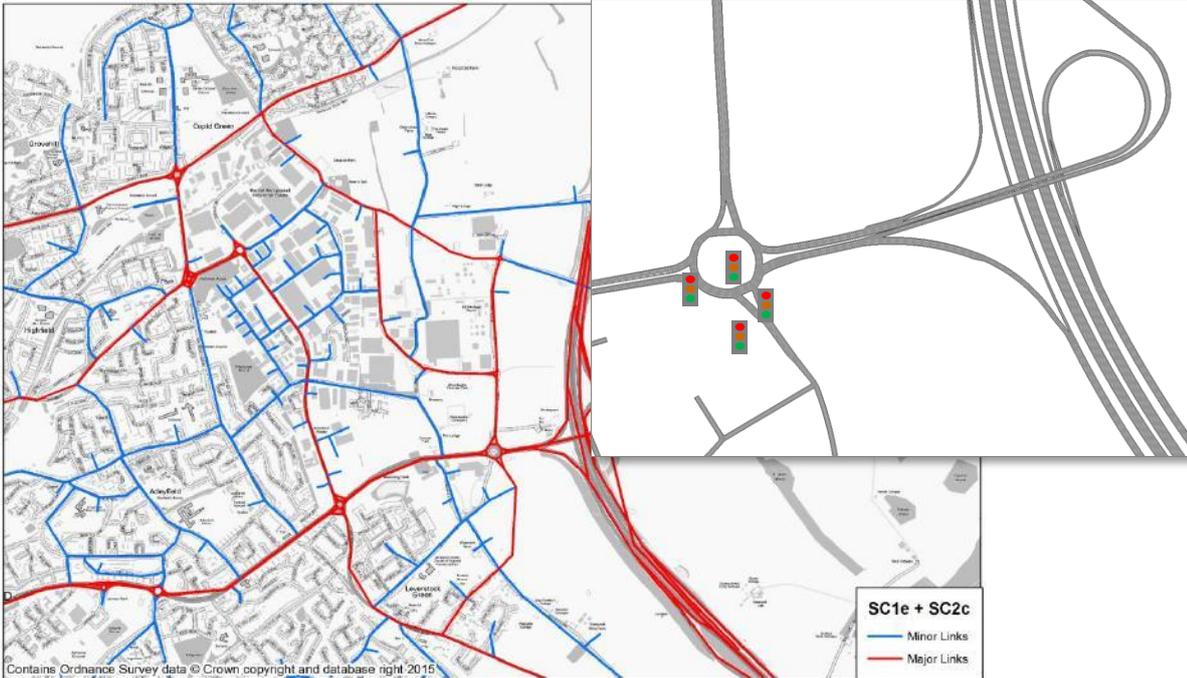
5. Further sensitivity test was undertaken to gauge how this scheme concept operates for the 2021 evening peak hour. The modelling suggests that SC1d generally operates well during this period:



6. As the 2021 modelling suggests that SC1d operates well, further 2031 sensitivity tests were undertaken to test how the scheme concept operates with greater traffic demand. For 2031 morning peak hour, the modelling suggests that queues will form on some approaches to SC1d. For 2031 evening peak hour, SC1d generally operates well with only short queues on outbound approaches from the Maylands area and Hemel Hempstead.

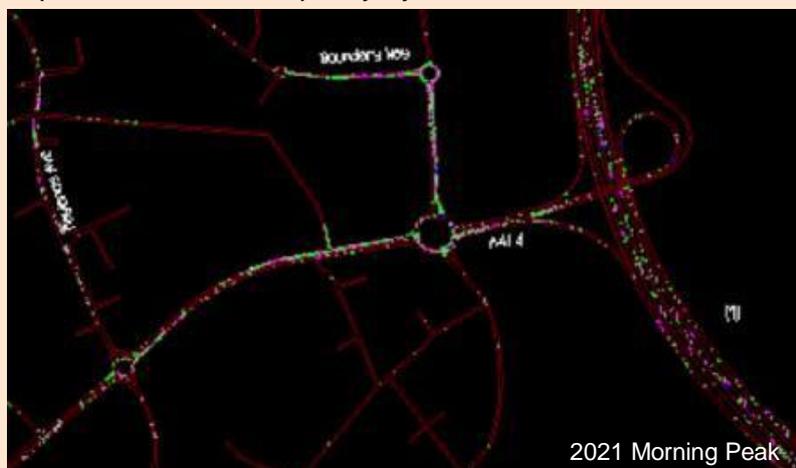


Scheme Concept Option	Description
SC1e + SC2c	Full signalisation of the existing roundabout plus widening on Green Lane (north & south), Breakspear Way eastern arm and the circulatory
High Level Network	

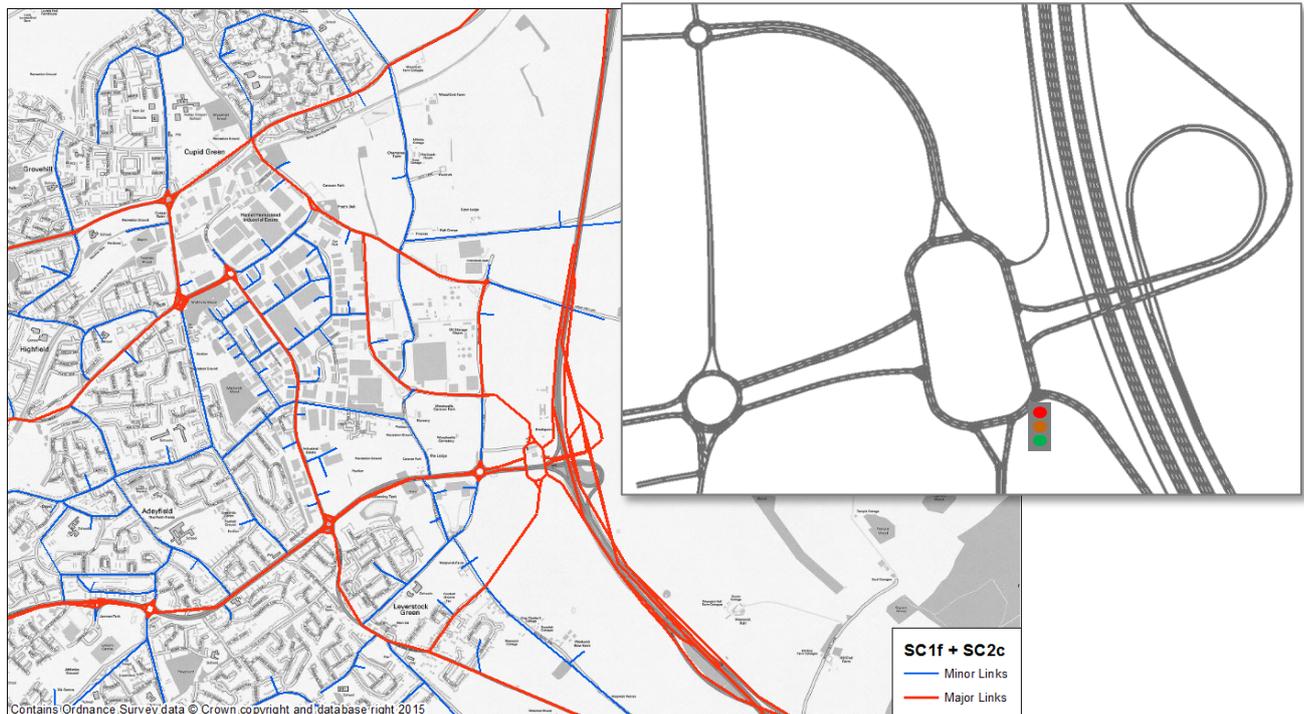


Key Model Observations

1. Larger roundabout provides greater capacity. Signalisation also provides greater control on the operation of the junction.
2. Modelling shows that for 2021 morning peak hour, SC1e will operate with queues on most approaches, particularly the A414 eastbound and Green Lane southbound approach arms and therefore unlikely to provide sufficient capacity by 2031 and therefore not tested further:



Scheme Concept Option	Description
SC1f + SC2c	Large lozenge signalised junction with access links north and south
High Level Network	



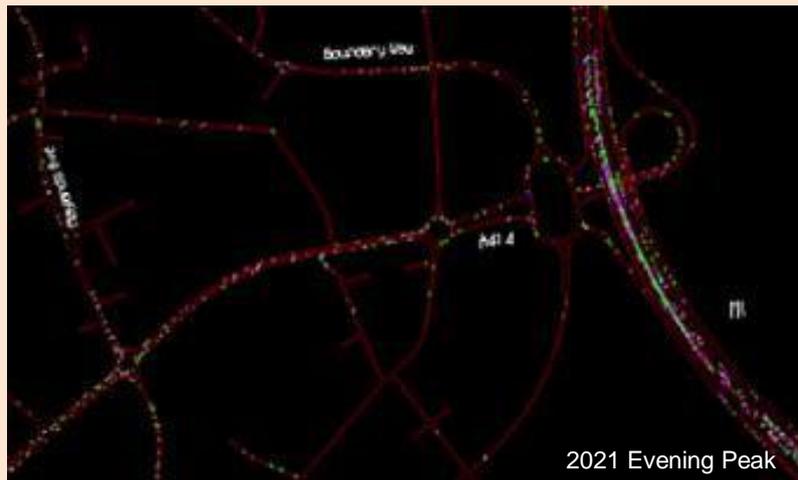
Key Model Observations

1. Although SC1f does not remove the conflicting flows of traffic approaching from the M1 to the Town Centre and the Maylands area, and traffic leaving Hemel Hempstead travelling towards the M1, the modelling shows that SC1f will provide greater capacity for the junction.
2. SC1f also provides direct access to the Maylands area via Boundary Way and Green Lane.
3. Signalisation for the northbound off-slip to ensure the queues on the off-slip does not extend to the main carriageway.
4. The modelling shows that for 2021 morning peak hour, SC1f generally operates well:



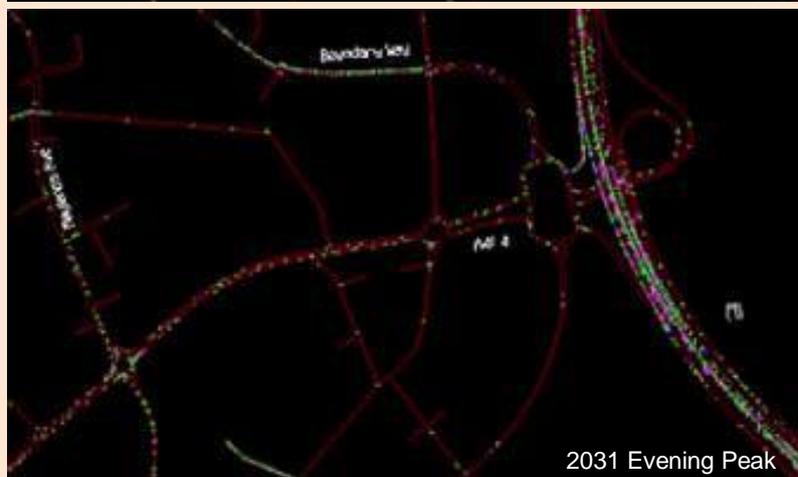
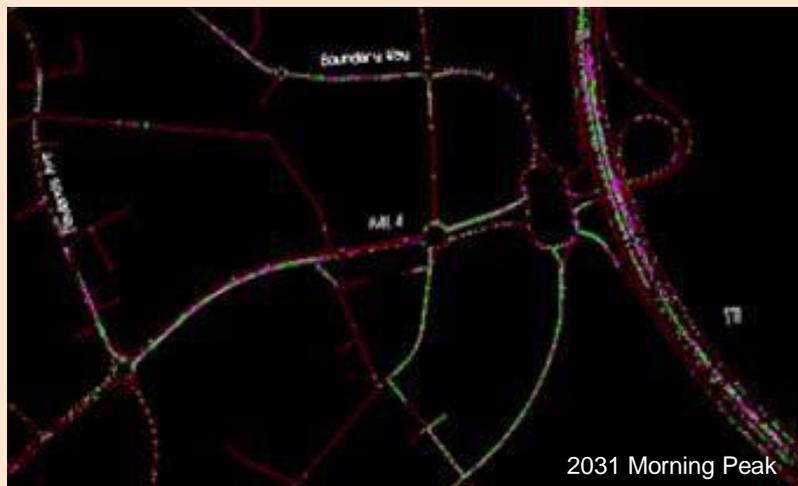
2021 Morning Peak

5. Further sensitivity test was undertaken to gauge how this scheme concept operates for the 2021 evening peak hour. The modelling suggests that SC1f generally operates well for the 2021 evening peak hour:



6. As the 2021 modelling suggests that SC1f operates well, further 2031 sensitivity tests were undertaken to test how the scheme concept operates with greater demand growth.

For 2031 morning peak hour, the modelling suggests that queues will form on some approaches to SC1f, but this could potentially be mitigated through signalisation. For the 2031 evening peak hour, SC1f generally operates well.

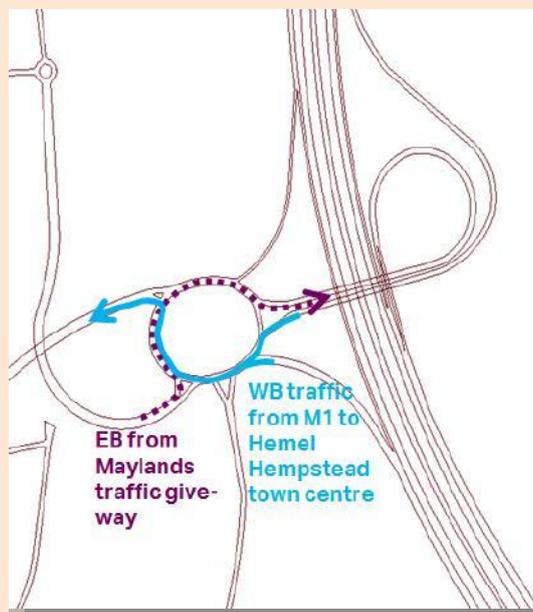


Scheme Concept Option	Description
SC1g + SC2c	Large roundabout and Green Lane flyover
High Level Network	

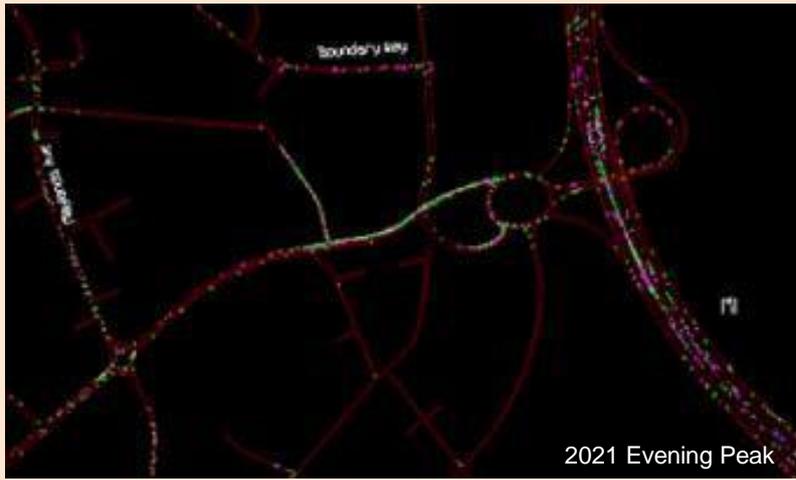
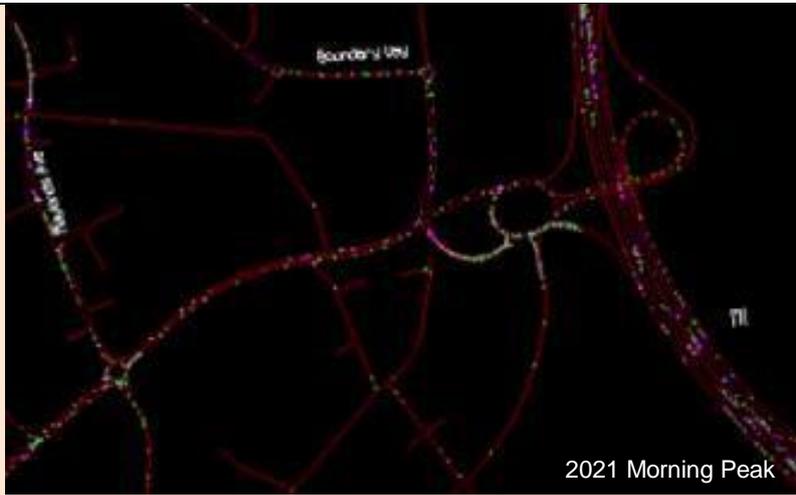


Key Model Observations

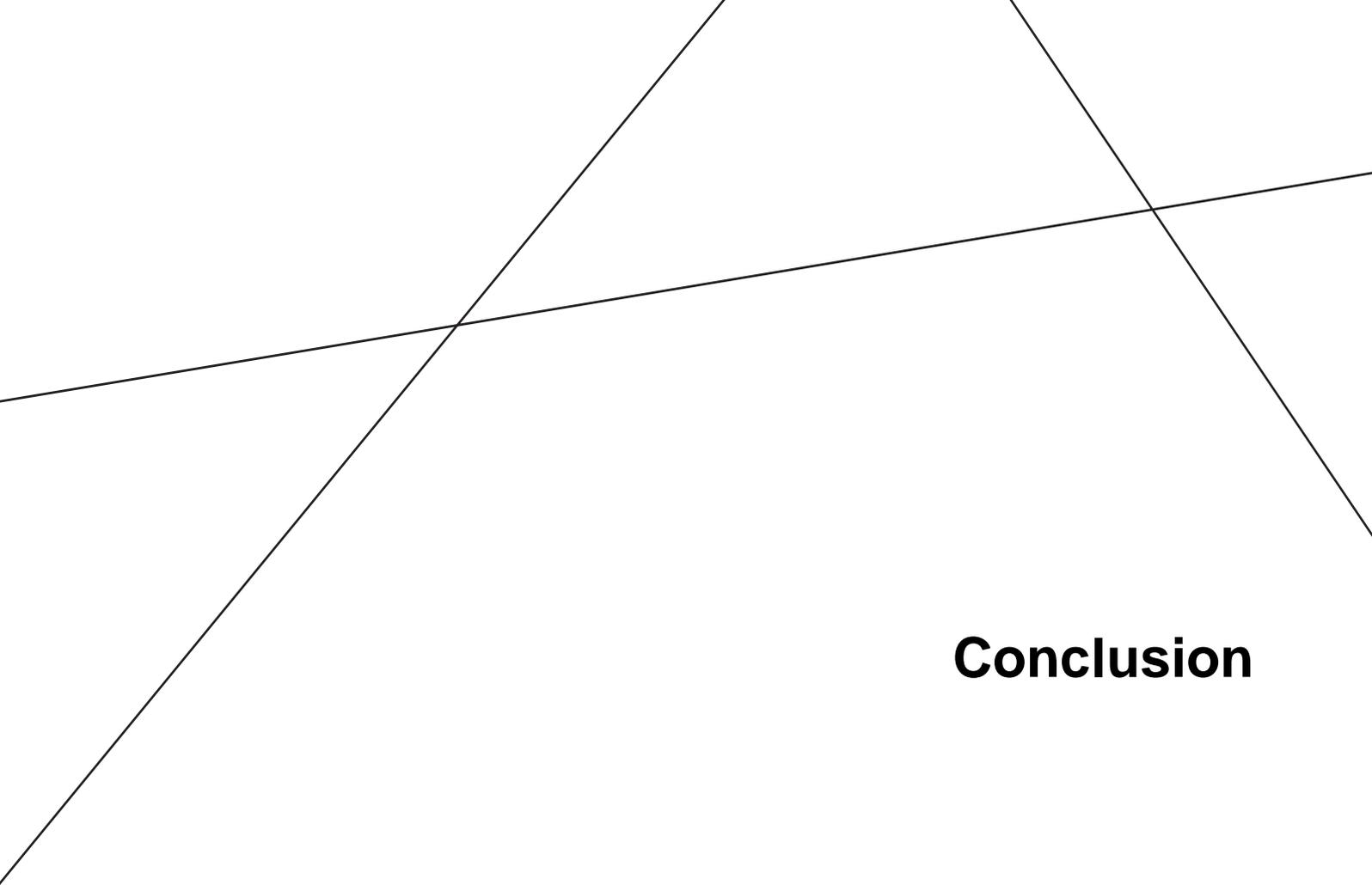
1. Conflicting movements of traffic approaching from the M1 to the Town Centre and the Maylands area, and traffic leaving Hemel Hempstead travelling towards the M1 cause queues on the eastbound approach to SC1g from the Maylands area for both 2021 morning and evening peak hour.



2. Modelling shows that for 2021 morning and evening peak hour, there will be queuing on the eastbound approaches to SC1g:



No testing of 2031 as the option does not provide sufficient capacity in 2021.

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Conclusion

03

3 Conclusion

This section summarises the tests undertaken, key caveats with the modelling and recommended way forward.

- 3.1 In summary at this stage, testing using the updated S-Paramics micro-simulation model, suggests that options SC1b (ii), SC1d and SC1f show the greatest potential to address the problem and provide capacity in both the short and long term.
- 3.2 All of these options however are subject to an assessment to determine their engineering feasibility and land-take implications which have not yet been considered in sufficient depth.
- 3.3 SC1b(ii) could address the key problem by removing the critical right-turning traffic and provide the opportunity for a grade-separated north-south link over the A414 connecting both parts of the East Hemel Hempstead development. The skewed bridge arrangement would need to be assessed in more detail to determine if its alignment would be feasible. A particular risk is the potential to require land which is on the north-western side of the A414 Breakspear Way roundabout which is zoned for development. If the scheme was, conceptually, determined as being feasible then it is recommended that consideration is given to whether or not the scheme can be designed in such a way that it did not require the parcel of land.
- 3.4 SC1d shows some merit however it could be penalised because of its likely cost, construction and timescales, particularly with regard to its interference with the M1 strategic road network. It would provide a dedicated access into Maylands however but would not provide the opportunity for a grade-separated link over the A414 for development traffic. This traffic would therefore need to route through the existing Breakspear Way roundabout.
- 3.5 SC1f also shows merit but like SC1d it could be penalised because of its likely cost, construction and timescales although potentially to a lesser extent. The option could be constructed offline with less disruption to the network. The option would not however provide the opportunity for a grade-separated link over the A414 for development traffic. This traffic could be routed through the new large roundabout or the existing Breakspear Way roundabout which could retain connections to Green Lane north and south, thus helping to spread traffic load.
- 3.6 The following caveats are noted with regard to the sensitivity tests.
- 3.7 The updated S-Paramics model has been used for this series of sensitivity tests. There is potential that if the options were re-tested in the enhanced S-Paramics model (to become available later in 2016) this could show a different level of option performance, particularly as the underlying traffic distribution data will have changed which could alter traffic volumes and routing patterns.
- 3.8 For the purpose of these tests, a series of assumptions have been made regarding development growth. As part of the forthcoming enhanced S-Paramics model, development growth assumptions will be re-examined and agreed between all parties.
- 3.9 With regard to the north-south development spine road, only SC2c has been tested alongside the SC1 options. It is possible that SC1a and SC1b, which at their northern and southern extremities would be brand new roads, could be more attractive routes for traffic. For the purpose of this model test, SC1c in

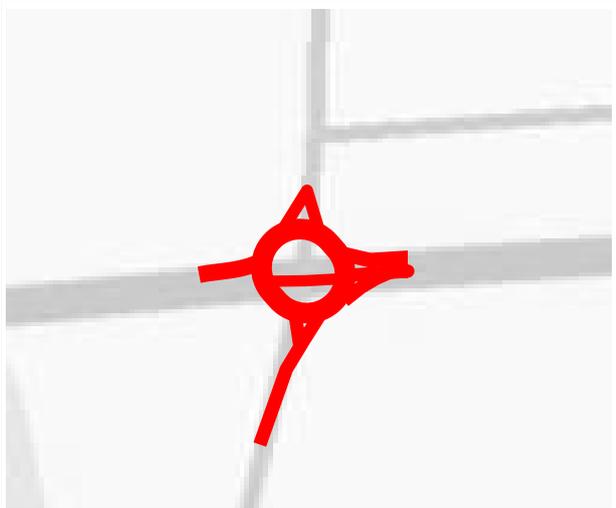
contrast comprises of a limited upgrade of existing roads and junctions within Maylands including Boundary Way. Without substantial capacity increases, which may not be feasible in terms of limited space, this option may not prove as attractive to traffic and may not encourage re-routing, certainly not to the extent of SC2a and SC2b.

- 3.10 Testing in 2026 has not been undertaken. It is considered that SC1a could provide short term relief to the network up to 2021, however it does not provide sufficient capacity by 2031. It is not known therefore when the scheme option could fall over. Theoretically, it could be five years by the time the scheme is implemented. If further testing indicated that it would not provide sufficient capacity by 2026, this would suggest the scheme would only provide a maximum of five years of relief and therefore the scheme option could be considered to offer poor value for money. Alternatively, if further testing did prove the scheme still provided capacity in 2026, SC1a could be considered as an interim scheme ahead of a more substantial scheme such as SC1b(ii), f or g.
- 3.11 Testing of SC1a and SC1b has been held off until the enhanced model is available which is likely to provide a more reliable platform for assessing potential wider traffic re-distribution and routing through Maylands.
- 3.12 The modelling has been based on the assumption of 243,600sqm of employment floorspace being provided at East Hemel Hempstead, split equally to B1, B2 and B8 land uses. It is understood this is greater than the Crown Estate's / Vectos' current assumptions regarding floorspace and therefore if tested with a lower figure this put reduce pressure on the surrounding network. The exact split between employment uses could significantly affect trip generation. For example, a greater proportion of B8 (warehouse) uses could reduce peak hour trip generation. It is uncertain what implications the Enterprise Zone designation will have on employment allocations in the area.
- 3.13 The modelling does not take in account any traffic peak spreading or modal shift which could occur in the future if traffic congestion was to continue increasing. Furthermore, it is not possible to assess wide-scale redistribution of traffic if congestion was to increase in the vicinity of Maylands.
- 3.14 The emerging Hertfordshire Transport Vision has identified potential schemes across the County. Consideration will need to be given to the nature of these schemes and any potential implications on the network within Hemel Hempstead. Subject to testing within the County's strategic COMET model, these schemes could alter the requirements for improvements in the vicinity of M1 Junction 8 and clarify the long term infrastructure requirements for Hemel Hempstead in the wider context of Hertfordshire.
- 3.15 A high level summary of the SC1 option performance is provided overleaf in **Table 4** along with the recommendations for next steps.

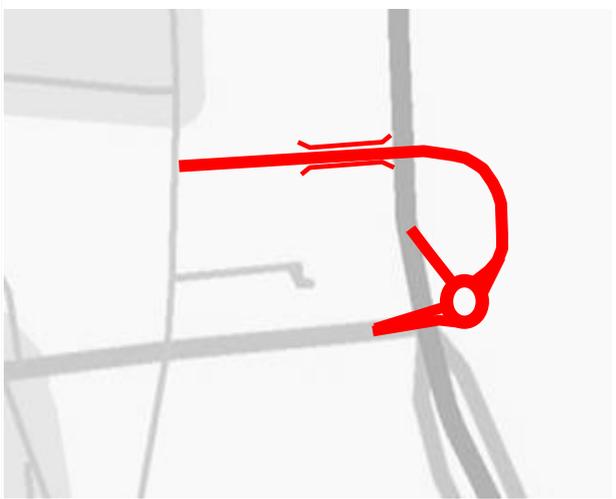
Table 4 – Summary of model sensitivity testing

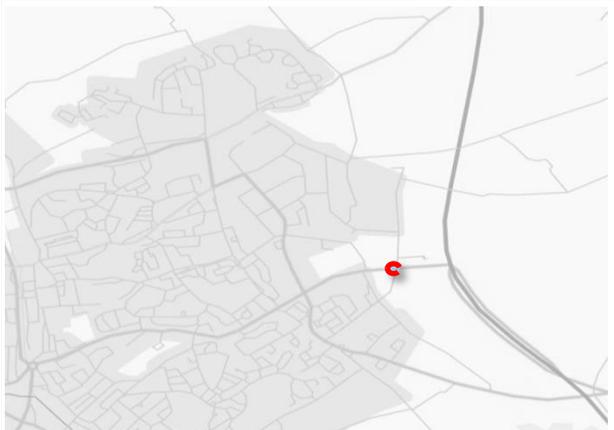
	Solves problem & accommodates future traffic growth		Comment	Recommendation
	2021	2031		
SC1a	Yes	No	Option could provide short-medium term relief but unlikely to provide sufficient long term capacity. Performance is dependent upon junction size.	Should be assessed further (as interim scheme only)
SC1b	Yes	No	May be more feasible than SC1b(ii) (fewer uncertainties) but design is compromised in terms of long term capacity.	Should not be assessed further
SC1b(ii)	Yes	Yes	Subject to engineering feasibility and land-take, this option shows potential to address future traffic growth.	Should be assessed further
SC1d	Yes	Yes	Subject to engineering feasibility and land-take, this option shows potential to address future traffic growth.	Should be assessed further
SC1e	No	No	Option does not address the problem or provide sufficient capacity in 2021.	Should not be assessed further
SC1f	Yes	Yes	Subject to engineering feasibility and land-take, this option shows potential to address future traffic growth.	Should be assessed further
SC1g	No	No	Option does not address the problem or provide sufficient capacity even in 2021.	Should not be assessed further

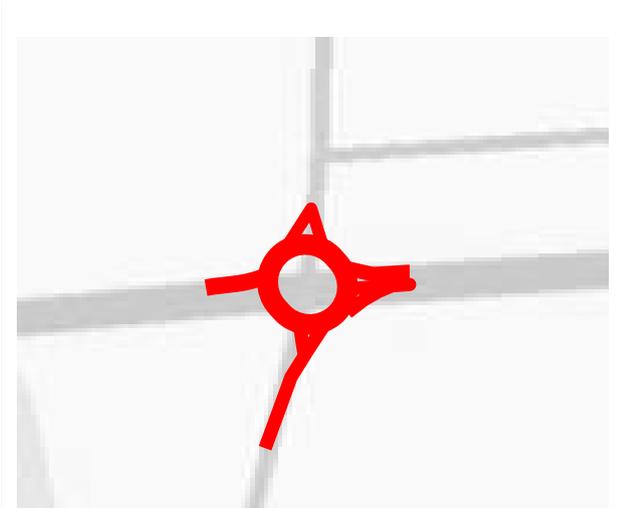
Appendix

SC1a		Enlarged Signalized Hamburger Roundabout																																					
Issue Location		Issue Description																																					
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Scheme Description																																							
<p>Enlarged signalised roundabout with 'hamburger' style through arm, providing sufficient stacking space on circulatory plus potential segregated left turn from Green Lane north.</p>																																							
Scheme Concept Sketch		Assessment Metrics																																					
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<h1 style="margin: 0;">SC1b (II)</h1> <h2 style="margin: 0;">Compact grade-separated junction with skewed overbridge</h2>																																				
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Appendix 4: East Hemel Hempstead Transport Assessment

The Crown Estate

East Hemel Hempstead

Transport Strategy and Evidence Base

July 2016

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1 INTRODUCTION

- 1.1 This document sets out the Transport Strategy for the development of the land located to the east of Hemel Hempstead, Hertfordshire. It has been prepared to summarise the work undertaken to date to support the evidence base for the St Albans Strategic Local Plan (SLP).
- 1.2 The Crown Estate owns a large area of land to the west of the M1 and to the east of Hemel Hempstead. The broad area that forms part of the draft SLP allocation is shown at **Figure 1** and **Figure 2**.
- 1.3 This strategy considers:
- The Transport Benefits of Locating Development at East Hemel;
 - Consultation with Stakeholders;
 - The Policy Background
 - The Proposed Development
 - The Sustainable Transport Strategy
 - Highway Impact
 - Summary and Conclusions
- 1.4 In developing the strategy we have actively engaged with a number of stakeholders including Hertfordshire LEP (LEP); Hertfordshire County Council (HCC); St Albans District Council (SDC); Dacorum District Council (DCC) and Highways England.

2 THE TRANSPORT BENEFITS OF LOCATING DEVELOPMENT AT EAST HEMEL

2.1 The Draft Local Plan explains that the objective of the East Hemel Allocation is:

“To provide a major urban extension of Hemel Hempstead to meet the needs of the St Albans housing market area and sub-regional economic development objectives for growth in the M1 corridor.”

2.2 From a transport perspective, the East Hemel site will act as an urban extension of Hemel Hempstead and will integrate well with existing facilities within Hemel Hempstead including the Maylands Industrial Estate and surrounding residential areas. In particular, the proposals would combine with the proposals for Spencer’s Park (Phase 1 and 2) creating a larger residential community to the north of Hemel Hempstead. It would also support local economic and employment growth aspirations of the Maylands Industrial Estate and Maylands Enterprise Zone (EZ). The employment area of the East Hemel development itself forms part of the recently created EZ.

2.3 The following paragraphs set out five of the key transport advantages of having additional housing at East Hemel:

- It is located adjacent to one of Hertfordshire’s Strategic Employment Site’s – Maylands Industrial Estate;
- Facilities including primary and secondary education, significant employment land and local centres will be provided on site;
- It is located close to the Nickey Line with excellent walking and cycling connections towards Hemel Hempstead town centre and Harpenden;
- The balance of residential and employment allows efficient bus services to be run; and
- Infrastructure can be provided in a planned and phased manner.

Located close to Employment

2.4 A key advantage of locating development close to an existing urban area such as Hemel Hempstead rather than in more dispersed locations is that it minimises overall trip making and trip distance. There is a significant quantum of employment within Hemel Hempstead, particularly within the Maylands Industrial Estate.

- 2.5 Existing travel to work patterns, based on local census data, are shown at **Figure 3** and demonstrate that some 50% of trips are contained in the local area with circa 20% of existing residents in the local area working in the Maylands area.
- 2.6 This local trip making will be enhanced with the creation of an additional up to circa 8,000 new jobs within the East Hemel sites which will provide existing and future residents with local employment opportunities.

On-Site Facilities

- 2.7 The scale of the development is such that both primary and secondary education provision will be made on site. Census Data and National Travel Survey Data show that some 23% of trips in the morning peak hour are for education purposes. Containing a proportion of these trips within the site will lead to a reduction of car trips on the local highway network compared with a more dispersed development strategy.
- 2.8 In addition to education, local retail and community facilities will be provided, further enhancing the self-containment.

Located close to the Nickey Line

- 2.9 **Figure 4** shows that the site is ideally located next to the Nickey line which is a dedicated footway cycleway which runs from Harpenden in the north east towards Hemel Hempstead Town Centre.

A Mix of Uses

- 2.10 The mix of uses assists in providing efficient bus services. For example, in the morning peak bus services between the site and the railway station can take residents to the station and employees from the station to the site.

Management of Infrastructure Delivery

- 2.11 Development of a major scheme under one landownership allows infrastructure and service improvements to be provided in a planned and co-ordinated way, phased in step with progress of the development.

3 CONSULTATION WITH STAKEHOLDERS

3.1 Vectos, on behalf of the Crown Estate, have undertaken extensive consultations with key transport stakeholders in formulating the strategy set out within this document.

3.2 A significant proportion of the liaison and engagement has taken place through meetings of the Maylands Growth Corridor Project Group. This comprises:

- Hertfordshire Local Enterprise Partnership (LEP)
- Hertfordshire County Council
- St Albans District Council
- Dacorum Borough Council
- Highways England
- AECOM (undertaking study)
- Vectos (on behalf of the Crown Estate)

3.3 The study is examining the need for infrastructure to support the planned growth in the Maylands Area, at East Hemel and within the wider Hemel Hempstead area. A number of options have been developed which have been subject to strategic testing using a Paramics model of Hemel Hempstead developed by HCC. This initial testing has shown that there are a range of options available to provide additional capacity in the area. One of these is reported in more detail within Section 7 of this report.

4 POLICY BACKGROUND

4.1 This section sets out a brief summary of the key transport policies relevant to the development proposals.

National Policy

National Planning Policy Framework (NPPF)

4.2 The NPPF sets out the Government's planning policies for England and how these are expected to be applied.

4.3 One of the 12 core land-use principles within the NPPF includes:

"[to] actively manage patterns of growth to make the fullest possible use of public transport, walking and cycling, and focus significant development in locations where it can be made sustainable."

4.4 Section 4 of the NPPF deals with 'Promoting Sustainable Transport.' Paragraph 29 states that:

"the transport system needs to be balanced in favour of sustainable transport modes, giving people a real choice about how they travel. However, the Government recognises that different policies and measures will be required in different communities and opportunities to maximise sustainable transport solutions will vary from urban to rural areas."

4.5 In addition, Paragraph 30 states that developments should facilitate the use of sustainable modes *"where reasonable to do so."*

4.6 Paragraph 32 sets out the transport issues which should be addressed within Development Plans and when making decisions on applications. It states that *"all developments that generate significant amounts of movements should be supported by a Transport Statement or Transport Assessment. Plans and decisions should take account of whether:*

- *the opportunities for sustainable transport modes have been taken up depending on the nature and location of the site, to reduce the need for major infrastructure;*
- *Safe and suitable access to the site can be achieved for all people; and*

- *Improvements can be undertaken within the transport network that cost-effectively limits the significant impacts of the development. Development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe.”*

4.7 The benefits of providing mixed-use sites are also identified within the NPPF. At Paragraph 37 it is stated that “planning policies should aim for a balance of land uses within their area so that people can be encouraged to minimise journey lengths.” In particular, Paragraph 38 states that “for larger scale residential developments... planning policies should promote a mix of land uses in order to provide opportunities to undertake day-to-day activities, including work, on site. Where practical, key facilities such as primary schools and local shops should be located within walking distance of most properties”

4.8 In relation to car parking, Paragraph 39 states that:

“In setting local parking standards for residential and non-residential development, local planning authorities should take into account:

- *The accessibility of the development;*
- *The type, mix and use of development;*
- *The availability of and opportunities for public transport;*
- *Local car ownership levels; and*
- *An overall need to reduce the use of high-emission vehicles.”*

Planning Practice Guidance (PPG)

4.9 On 6 March 2014, the Department for Communities and Local Government (DCLG) launched the National Planning Practice Guidance (NPPG) web-based resource. One section relates specifically to Transport and is titled ‘Travel Plans, Transport Assessments and Statements in decision-taking’ and this provides the overarching principles of Travel Plans, Transport Assessments and Statements.

4.10 The guidance explains the role of Transport Assessments and Statements as: *“ways of assessing the potential transport impacts of developments (and they may propose mitigation measures to promote sustainable development. Where that mitigation relates to matters that can be addressed by management measures, the mitigation may inform the preparation of Travel Plans)”*.

- 4.11 The guidance also states that Travel Plans are *“long term management strategies for integrating proposals for sustainable travel into the planning process. They should be brought forward in parallel with development proposals and should be integrated in to the design of developments.”*
- 4.12 The guidance demonstrates that Transport Assessments and Statements and Travel Plans can positively contribute in the following ways:
- *“encouraging sustainable travel;*
 - *lessening traffic generation and its detrimental impacts;*
 - *reducing carbon emissions and climate impacts;*
 - *creating accessible, connected, inclusive communities;*
 - *improving health outcomes and quality of life;*
 - *improving road safety; and*
 - *reducing the need for new development to increase existing road capacity or provide new roads.”*

Regional Policy

Hertfordshire Local Transport Plan 3 (2011 – 2031)

- 4.13 Hertfordshire’s Local Transport Plan 3 (LTP3) sets the framework for achieving a better transport system for the county over a plan period of 20 years (2011 – 2031). LTP3 sets out five goals, based on national policy. These are:
- Support economic development and planned dwelling growth;
 - Improve transport opportunities for all and achieve behavioural change in mode choice;
 - Enhance quality of life, health and the environment for all residents;
 - Improve the safety and security of residents and other road users;
 - Reduce transport’s contribution to greenhouse gas emissions
- 4.14 A number of challenges have been determined which relate to each goal. With regards to the goal of supporting economic growth and housing development, it is stated that the council will

provide support through delivery of transport improvements and where necessary, enhancement of the network capacity.

- 4.15 It is noted within LTP3 that the design of new developments will impact on the connectivity of new development and the degree that sustainable modes can take the place of car journeys.
- 4.16 The LTP3 provides strong support for locating developments near to passenger transport links with access to key services and major interchanges. The intention of the Plan is to *“realise every opportunity for new residential developments to be served by sustainable modes.”* The provision of up to date and comprehensive information to users (including new residents, for example through residential travel plans) is identified as a significant part of promoting sustainable travel.
- 4.17 It is also stated that the council will *“require new developments to include sustainable infrastructure including cycle and pedestrian routes and these should be funded by the developer.”*
- 4.18 Specific transport policies are included within Volume 2 of the LTP3. The relevant policies are set out below.

Policy 3.1 Access to Services

- 4.19 The county council will *“promote liaison between planners and developers to ensure that residents in existing and proposed residential developments can access key services using sustainable modes of transport.”*

Policy 3.8 Development Control

- 4.20 The county council will:

“Examine development proposals to establish whether their effects on the transport systems can be accepted and to ensure that the access arrangements are constructed to an adequate and safe standard;

Ensure the transport and safety implications of development proposals are considered; and

Assess development with regard to reducing the need to travel and ensure that alternative modes of transport such as walking, cycling and public transport are promoted”

Policy 3.15 Parking

4.21 In relation to parking, it states that the *“provision and standards for car parking will be determined by Local Planning Authorities in the context of Local Development Frameworks.”*

4.22 It also goes on to state that:

“Parking for residential development should reflect the local circumstances of the development and where appropriate, the parking policy of the district council. Normally, full parking needs should be met on site but reduced provision in locations with good access to passenger transport may be allowed.”

Local Policy

St Albans District Local Plan Review: Saved Policies (1994)

4.23 Following a formal Direction from the Secretary of State, a number of policies of the District Local Plan Review 1994 were ‘saved.’ These are formally recognised as part of the development plan for St Albans.

4.24 Policy 34 ‘Highways Considerations in Development Control’ states that *“development likely to generate a significant amount of traffic or which involves the creation or improvement of an access onto public highway will not normally be permitted unless acceptable in terms of road safety, environmental impact of traffic, road capacity, and car parking provision.”*

4.25 Policy 36A ‘Location of New Development in Relation to Public Transport Network’ states that *“in considering the impact of new development, account will be taken of its proximity to the public transport network and whether facilities will be provided within the development to cater for use of the network.”*

4.26 With regards to parking provision at new development, the Council requires that sufficient parking spaces are provided to meet existing and likely future demand. Subsequently, a set of parking standards were prepared for new developments.

4.27 Policy 39 lists a number of criteria that should be accorded with when providing parking for new development. It notes that parking proposals must *“be acceptable in terms of visual impact, landscaping and amenity of adjoining properties”* and that *“access roads and parking areas must not detract from the setting of listed buildings and conservation areas.”*

St Albans Draft Strategic Local Plan 2011-2031

4.28 The St Albans Draft Strategic Local Plan (SLP) 2011-2031 was published in January 2016 for consultation. The SLP is the principal Development Plan Document (DPD) and establishes the Council's long term spatial planning strategy for delivering development and infrastructure from 2011 to 2031

4.29 Within the Draft SLP there are two key policies which are relevant to the East Hemel sites, namely SLP 13 (a) – East Hemel North and SLP 13 (b) - East Hemel South.

4.30 Policy 13 (a) states that the objective of the allocation is as follows:

“To provide a major urban extension of Hemel Hempstead to meet the needs of the St Albans housing market area and sub-regional economic development objectives for growth in the M1 corridor.”

4.31 The policy sets out the key requirement of the proposals and the key land use/transport policies are set out below:

- Substantial urban extension – minimum capacity circa 1,500 dwellings
- Countryside access links including improved off-road paths;
- A new primary school and secondary school (either in north or south area);
- Transport network (including walking and cycling links) and public transport services upgrades / improvements;
- New neighbourhood and local centres, including commercial development opportunities; and
- Recreation space and community facilities.

4.32 Policy 13 (b) states that the objective of the allocation is as follows:

“To provide a major urban extension of Hemel Hempstead to meet the needs of the St Albans housing market area and sub-regional economic development objectives for growth in the M1 corridor. Potential for inclusion of non-housing land uses as required to support Dacorum's Plan and the development of Hemel Hempstead.”

4.33 The policy sets out the key requirement of the proposals and the key land use/transport policies are set out below:

- A substantial urban extension – minimum capacity circa 1,000 dwellings;
- A new primary and secondary school (either in north or south area);
- Significant scale employment provision for a range of uses including: offices, research and development, light industrial and logistics; broadly within the 55 Ha area north of Breakspear Way and south of Punchbowl Lane;
- Transport network (including walking and cycling links) and public transport services upgrades/improvements, particularly to A414 corridor;
- New or improved existing neighbourhood and local centres - linked to Leverstock Green neighbourhood;
- Recreation space and community facilities.

Dacorum Core Strategy 2006-2031 (Adopted 2013)

- 4.34 The Dacorum Core Strategy was adopted on 25th September 2013 and replaces the Dacorum Borough Local Plan (1991 – 2011). It should be noted however, that not all policies contained within the Local Plan have been replaced. Many policies have been saved and will continue to form part of the Development Plan for Dacorum Borough Council (DBC) until they are formally superseded or cancelled.
- 4.35 The strategy states that Hemel Hempstead will be “the main centre for development and change in the borough and the focus for new homes, jobs and infrastructure”.
- 4.36 East Hemel Hempstead (Maylands Business Park) is promoted within the strategy as a sub-regional business centre. The strategy states, “*It will be the focus for high quality, energy efficient development, with improved access to open space and local services and facilities*”.
- 4.37 Policy CS8 of the Core Strategy addresses sustainable transport:
- “All new development will contribute to a well-connected and accessible transport system whose principles are to:*
- (a) give priority to the needs of other road and passenger transport users over the private car in the following order:*
- *pedestrians*
 - *cyclists*
 - *passenger transport (buses, trains and taxis)*
 - *powered two wheeled vehicles*

- other motor vehicles;
- (b) ensure good access for people with disabilities;
- (c) ensure passenger transport is integrated with movement on roads, footways and cycleways;
- (d) create safer and continuous footpath and cycle networks, particularly in the towns;
- (e) maintain and extend the rural rights of way network;
- (f) improve road safety and air quality;
- (g) strengthen links to and between key facilities (bus and railway stations, hospitals, main employers and town centres); and
- (h) provide sufficient, safe and convenient parking based on car parking standards: the application of those standards will take account of the accessibility of the location, promoting economic development and regeneration, supporting shopping areas, safeguarding residential amenity and ensuring highway safety.

Development proposals will also contribute to the implementation of the strategies and priorities set out in the Local Transport Plan and local Urban Transport Plans.”

4.38 Policy CS9 of the Core Strategy discusses “*Management of Roads*”:

“All new development will be directed to the appropriate category of road in the road hierarchy based on its scale, traffic generation, safety impact, and environmental effect.

The traffic generated from new development must be compatible with the location, design and capacity of the current and future operation of the road hierarchy, taking into account any planned improvements and cumulative effects of incremental developments.

Improvements to the network and all traffic management measures will be designed to channel long distance through traffic onto the motorway and primary roads (i.e. M1, M25, A5 and A41).

In Hemel Hempstead road improvements will focus on relieving congestion in and around the Maylands Business Park, including the delivery of a new north-eastern relief route, and improving the capacity and safety of the Plough Roundabout. Elsewhere, small-scale improvements will be undertaken to tackle local environmental and safety problems.

Other new road capacity will only be justified for local environmental, air quality (including any declared Air Quality Management Areas), safety reasons, or for accommodating local access requirements.

Local road space will be shared and designed to allow the safe movement of all users.

In villages and the countryside, special regard will be paid to the effect of new development and traffic on the safety and environmental character of country lanes.”

Dacorum Local Plan 1991-2011: Saved Policies (2004)

4.39 The Dacorum Local Plan was replaced by the Dacorum Core Strategy. However, as stated above, many policies have been saved and will continue to form part of the Development Plan for Dacorum Borough Council (DBC) until they are formally superseded or cancelled. The following policies, which have been saved, are of relevance to the proposed development.

4.40 Policy 51 looks at “Development and Transport Impacts”:

“Overall capacity in the main road network will be regarded as an important constraint on development proposals which would have a significant transport impact... Development must be compatible in locational and general highway planning, design and capacity terms with the current and future operation of the defined road hierarchy and road improvement strategy”

4.41 Policy 58 (Private Parking Provision) is within the list of saved policies from the Local Plan. It provides guidance on parking provision for new development in the borough, with specific parking standards set out in Appendix 5. These are presented below in **Table 4.1**.

4.42 In addition, the council requires the identification of ‘Accessibility Zones’ at the local level. This enables the practical application of a demand-based approach to parking provision. The site is located within Zone 4, where it is considered the maximum parking is provision is required.

4.43 The Accessibility Zones and the proportions of the relevant maximum parking standards are presented in **Table 4.2**.

Policy Compliance

- 4.44 A key aim of local and national transport policy is to integrate land use planning and transport for new development and to promote accessibility by non-car modes of transport wherever possible. New developments should ensure that high quality provision is made for pedestrians and cyclists, and connections to public transport facilities should be maximised. Car and cycle parking should be provided in accordance with relevant local standards, and be well designed and conveniently located. Proposals should also be supported by a Travel Plan.
- 4.45 The Proposed Development has been designed to comply with these policy objectives and this is demonstrated throughout the remainder of this report.

5 PROPOSED DEVELOPMENT

Introduction

- 5.1 The land parcels associated with the draft allocation for the East Hemel area are shown at **Figure 5**.

Access Strategy

- 5.2 The details of the access strategy for the area are still to be finalised but the currently envisaged strategy is shown at **Appendix A**. And is described below.
- 5.3 A spine road will be formed that connects the A414 to Redbourn Road. This will be partly new road and partly an upgrade of Green Lane.
- 5.4 The northern part of the development will also link through to the highway network being formed as part of the Spencer's Park development and thereby to Three Cherry Trees Lane.
- 5.5 To the south of the A414 a new spine road will be formed that links through to the A4147 St Albans Road.
- 5.6 As described later in this report it is likely that enhancement of access to the East Hemel and Maylands area will be required over time. A number of options for improvement have been considered in terms of modelling and engineering feasibility. One option is illustrated at **Appendix A**. This involves the upgrading of Junction 8 of the M1 and the introduction of a new access route into the Maylands area that will also serve the new employment area at East Hemel. The existing Breakspear roundabout is also assumed to be upgraded.
- 5.7 The phasing of these improvements is still to be determined and will depend on the progress of developments in the area and elsewhere in Hemel Hempstead.
- 5.8 The analysis of this option is described in Section 6 of this report.

6 SUSTAINABLE TRANSPORT STRATEGY

- 6.1 The Sustainable Transport Strategy (STS) forms an integral part of the proposals for East Hemel.
- 6.2 The strategy should be seen in the context of a development area which is likely to take a number of years to be fully built out and occupied. During this time government policies are likely to evolve to give further encouragement to the use of sustainable means of transport.
- 6.3 The elements of the strategy are described below.

Masterplan Design

- 6.4 As set out earlier in this report many trips can be contained within the masterplan area and local area. The masterplan design will reflect this with high quality routes created for pedestrians and cyclists to link the various areas of the masterplan. In particular the masterplan will include:

- A network of footways and cycleways linking the various parts of the site;
- Footway and cycle links to surrounding areas (including Spencer's Park);
- Relevant routes designed to accommodate buses;
- Local Centres and schools designed to be accessible to all units by walking;
- A hierarchy of roads: primary, secondary and tertiary; and
- Alignments of roads to avoid through traffic.

Walking & Cycling

- 6.5 The proposed local walking and cycling strategy is shown at **Figure 6**. The key elements of the strategy are:

- Direct links to the Nickey Line allowing access to this off road route;
- Access over the Nickey Line with a controlled crossing over Redbourn Road to give access to Woodhall area local centre;
- Creation of quiet ways on some local roads (e.g. Cherry Tree lane);
- Good links to Spencer's Park;
- Links via local roads to the Maylands Industrial area; and
- Links to Leverstock Green local centre.

- 6.6 The masterplan will ensure that key desire lines are created for both pedestrians and cyclists throughout the site. These routes will permeate through the site boundaries and connect with local centres at Leverstock Green to the southwest and Woodhall Farm Estate to the northwest as well as employment opportunities in Maylands Industrial area. Both of these existing communities contain retail, education, leisure facilities which will supplement the proposals that will be included within the East Hemel development.
- 6.7 A catchment showing a 2km walking distance from the centre of the site is included at **Figure 7**.
- 6.8 The site benefits from being close to the Nickey Line, which runs in an east-west direction to the north of the proposed development. The Nickey Line is a 12km route provided from Harpenden in the north towards Hemel Hempstead Town Centre. The route was a former railway line and now forms part of National Cycle Route (NCR) 57. A green corridor with a rural aspect forms much of its length providing an attractive walking and cycle route with traffic-free access to schools and employment areas, including the Maylands Employment Area, within Hemel Hempstead. A number of Public Rights of Way (PROW) also intersect the Nickey Line and provide onwards connectivity to destinations within Hemel.
- 6.9 A large number of facilities are within a 5 km of the site, including the town centre, whilst Hemel Hempstead Railway Station is located within an 8km catchment of the site. A catchment showing a 5km and 8km distance from the centre of the site is included at **Figure 8**.

Public Transport

Bus Strategy

- 6.10 A development of circa 2,500 residential units and around 8,000 new jobs provides the critical mass of development to deliver an extensive enhancement of existing bus services. The patronage generated by the development would enhance the viability and quality of existing services and provide new services within in East Hemel.
- 6.11 **Figure 9** demonstrates the potential for existing routes to be diverted or extended via the proposed development parcels and includes the following:
- A new bus route is proposed connecting both residential development parcels and the new employment area with Hemel Hempstead town centre and railway station;

- Extension of existing bus routes 1 and 300/301 via the A4147 into the southern residential development.

6.12 TCE will work in partnership with the highway authorities and local bus operators and by engaging local communities, the development will facilitate attractive and viable bus routes. Bus services will be delivered in a phased manner responding to increased demand. However, it is proposed to ensure that services are provided early in the life of the development in order to encourage establishment of sustainable habits.

Rail Strategy

6.13 The closest rail station to the Site is Hemel Hempstead station which is located approximately 5km west of the Site. The station is managed by London Midland and direct services are provided to destinations in the south including London Euston and in the north such as Milton Keynes and Northampton.

6.14 At present, several bus services provide connections from the Hemel Hempstead railway station to bus stops along B487 Redbourn Road, Three Cherry Trees Lane and the A4147 within the vicinity of the development site. Some of the services to be extended along with the potential new service can serve the rail station.

6.15 Furthermore, cyclists are able to travel via the Nickey Line towards the centre of Hemel Hempstead in the direction of the railway station. Although the Nickey Line does not extend the full commuting distance, there are opportunities for cyclists to continue their journey beyond the Nickey Line towards the station via quieter, on-road routes. Hemel Hempstead railway station currently provides 64 cycle parking spaces.

6.16 In addition to the main rail station at Hemel Hempstead, there is a second station located to the south of Hemel Hempstead at Apsley which is on the same line as Hemel Hempstead. This station is located approximately 4.5km to the south west of the southern parcel of land and may provide a more convenient connection than Hemel Hempstead station for some residents.

Innovation

6.17 A scheme such as East Hemel will take many years to fully build out and transport provision will change and evolve over that time. It is therefore important to design for these innovations. Some of the potential measures are:

- Home Delivery: It is likely that home delivery will continue to grow and retailing will continue to evolve. Therefore, distance to traditional shopping may become less of an issue and management of home deliveries will become more important;
- Journey planning: Journey planning will be a key feature as congestion continues to be a realistic aspect of life in the United Kingdom and as other forms of transport continue to grow in prosperity such as cycling, car sharing etc.
- Electric bikes, scooters etc. This is a growth area and could provide for trips within the site as well as linking to nearby areas. A cycle hire scheme is a possibility and cycle hire schemes have been actively promoted in areas throughout the UK including Glasgow, Belfast, Bath, Stirling and most notably in London. Cycle hire schemes offer the flexibility to combine journeys at a relatively low cost and could create effective links within a community.

6.18 Continued growth in alternative fuelled cars are also likely to result in reducing emissions from private vehicles which will be a significant long term benefit for any development.

Travel Patterns

6.19 **Figure 3** demonstrates existing travel patterns for East Hemel based on 2011 Census Travel to Work data extracted from Nomis. Of the usual residents living in Dacorum Middle Super Output Area (MSOA) 013 during 2011, 19.3% worked within the Maylands Employment Area to the west of the site, whilst 14% of the population worked within the centre of Hemel Hempstead. A further 13.2% of usual residents worked within the remaining areas of the Hemel Hempstead and 3.3% worked within St Albans to the east.

6.20 These travel patterns demonstrate that approximately 50% of the population already work within distances that would readily facilitate sustainable commuting methods including walking, cycling and public transport.

Travel Planning – A holistic Approach

6.21 Research undertaken for the DfT's Sustainable Travel Towns (STTs) project has demonstrated that a town-wide approach can reduce traffic levels by 7 to 10%. However, these results are for existing towns. The aim is to do better than that and reduce traffic levels by a higher percentage. This is because a new community created within East Hemel would be capable of

instilling the right culture and attitudes from the start and it is hoped this will positively influence the surrounding areas.

6.22 The experience of the three STTs of Darlington, Peterborough and Worcester is that it is important to understand each town's unique local characteristics, but that successful travel planning requires certain key elements including:

- The importance of planning for a long-term programme;
- Engagement with stakeholders and elected members;
- Clear strategic direction;
- The right governance structure;
- Complementary measures for traffic reduction;
- Targeting specific modes;
- School travel planning for primary and secondary schools;
- Workplace travel planning; and
- Soft measures accompanied by infrastructure improvements.

6.23 The STTs indicate that the right governance structure is vital. Working with partners in the local community including local business, education establishments, health organisations, local transport operators and relevant sector groups, has been valuable in targeting travel planning at appropriate groups.

6.24 It is considered that there is a real opportunity for the proposed development to act as a catalyst for change not only in the new community but also within existing communities in Hemel Hempstead, through providing strong leadership.

6.25 Adopting this approach to travel planning for the proposed development will require the local authorities and the other key stakeholders to 'buy in' to the concept and work in partnership with The Consortium.

Summary

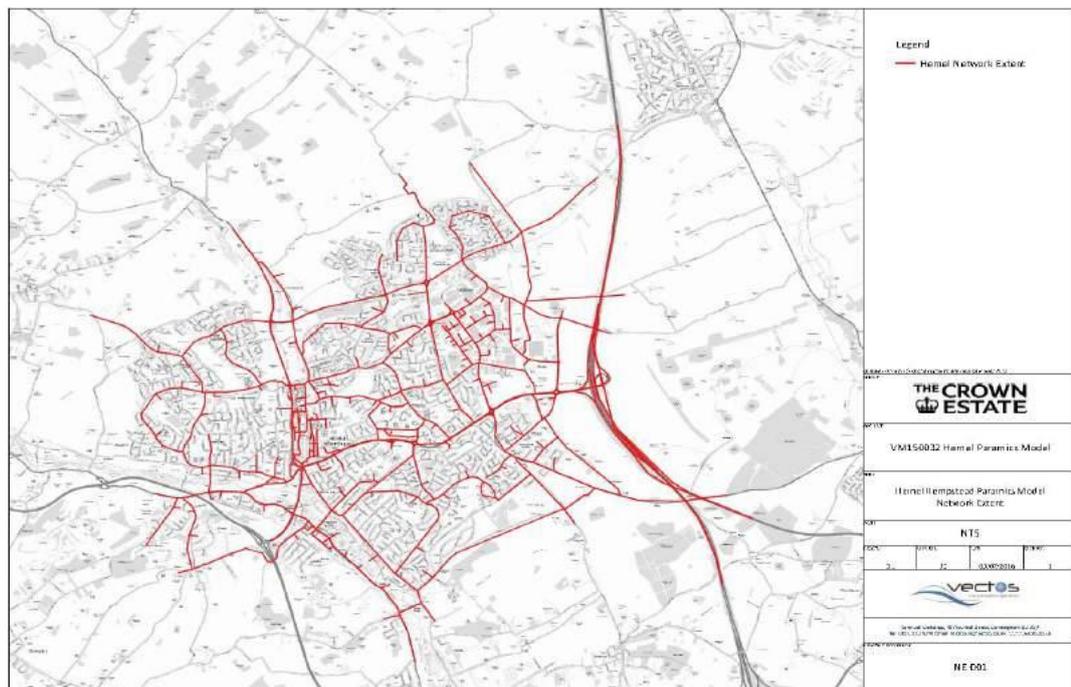
6.26 Because of its size and single ownership, development at East Hemel is capable of supporting a comprehensive Sustainable Transport Strategy. This strategy will not only serve those living and working on the site but also bring forward benefits for the existing communities in Hemel Hempstead.

6.27 The strategy accords with the objectives set out in national and local planning guidance to provide sustainable transport solutions.

7 HIGHWAY IMPACT

- 7.1 Significant work has been undertaken at a strategic level to develop and test the highway network in the area of East Hemel and Maylands and the wider Hemel Hempstead area. The work has considered growth due to planned developments in the Hemel Hempstead area as a whole and has also considered potential highway improvement schemes. This has been undertaken using a Paramics microsimulation model. Testing has been undertaken by AECOM as part of the Maylands Growth Corridor Study (LEP) and by Vectos on behalf of The Crown Estate.
- 7.2 An illustration of the area covered by the Hemel Hempstead Paramics Model (HHPM) is presented at **Image 1** below.

Image 1: HHPM Model Extent



- 7.3 The existing model has been used to undertake a strategic assessment suitable for the SLP. The most recent update to the model utilises traffic flow information obtained in 2015 and has been undertaken by AECOM acting on behalf of the Hertfordshire Local Enterprise Partnership (LEP) and Hertfordshire County Council (HCC). This work was undertaken as part of the Maylands Growth Corridor Study (MGCS).

- 7.4 In parallel, the model is in the process of being updated in order to undertake more detailed analysis in due course to support detailed infrastructure planning. It is anticipated that this updated evidence will be available prior to public examination of the Local Plan.

Methodology

- 7.5 The first stage of the assessment involved refining the forecast demands within the model network in order that the growth accords with the factors identified via interrogation of the TEMPRO database. Using these demands a series of model tests were then undertaken to test the performance of the network assuming certain levels of highway mitigation.
- 7.6 The assessment has been undertaken for the end of the Local Plan period ie 2031. The AM peak period has been assessed since this is normally the most congested period.

Forecast Demand Adjustments

- 7.7 It is readily acknowledged that the TEMPRO database is out-dated insofar as the housing numbers contained within the database frequently need to be adjusted to ensure that the growth projections reflect a level of increase which takes cognisance of the likely housing delivery numbers.
- 7.8 Therefore, prior to undertaking the model runs, adjustments were made to the demands to produce a set of forecast HHPM scenarios in which the growth accords with TEMPRO projections after being adjusted to reflect the revised housing number.
- 7.9 This involved a review of the growth projections within the current HHPM as well as the TEMPRO predictions for the same period with a manual adjustment incorporated to account for the revised housing number.
- 7.10 The following **Table 7.1** identifies the Dacorum housing delivery schedule for the two scenario years assessed whilst **Table 7.2** details the quantum of housing assumed in the East Hemel area during the same period. **Table 7.3** reveals the resultant growth within applied the HHPM forecast scenarios in line with the updated TEMPRO projections. The revised factors represent the growth in light vehicles assigned to the model as a result of the forecasting update.

Table 7.1: Dacorum Housing Delivery Projections

Year	2021	2031
Dwellings	3,082	9,256

Table 7.2: East Hemel Development Assumptions

Year	2021	2031	Cumulative
East Hemel (North)	136	1,360	1,496
East Hemel (South)	91	910	1,001
Total	227	2,270	2,497

Table 7.3: Updated HHPM Growth Levels

Forecast Period	2015 to 2021	2015 to 2031
AM	5.22%	15.56%
PM	5.31%	16.41%

- 7.11 The growth levels identified within **Table 7.3** represent those which have been assigned within the updated HHPM forecast model scenarios to inform the review of the network performance.
- 7.12 The pattern and distribution of growth has been based on the existing pattern contained within the current HHPM forecast scenarios as used to inform the Maylands Corridor study.
- 7.13 The growth forecasts have only been applied to the light vehicle demand matrices. Growth associated with the HGV assignment matrices has been retained at a higher level which is consistent with the original Maylands corridor assessment.
- 7.14 It is believed that the above growth forecasts closely accord with those used by HCC within their COMET strategic modelling.

Model Scenarios Definition

- 7.15 A series of model scenarios has been defined to enable an assessment of the network operation to be undertaken under various circumstances. As a result, there were 3 core scenarios defined:
- **Do Minimum** – Changes to the assigned demands only (i.e. no additional network interventions)
 - **Do Something** – Network amendments which have been derived from initial modelling and engineering assessments undertaken by AECOM and Vectos. The strategic

infrastructure is just one option amongst a number that have been developed and considered.

- **Do Something Plus** – The previous scenario with additional network changes included to reflect the delivery of scheme proposals in other areas of the model which were perceived to constrain the network performance through a failure to accommodate the required traffic volumes.

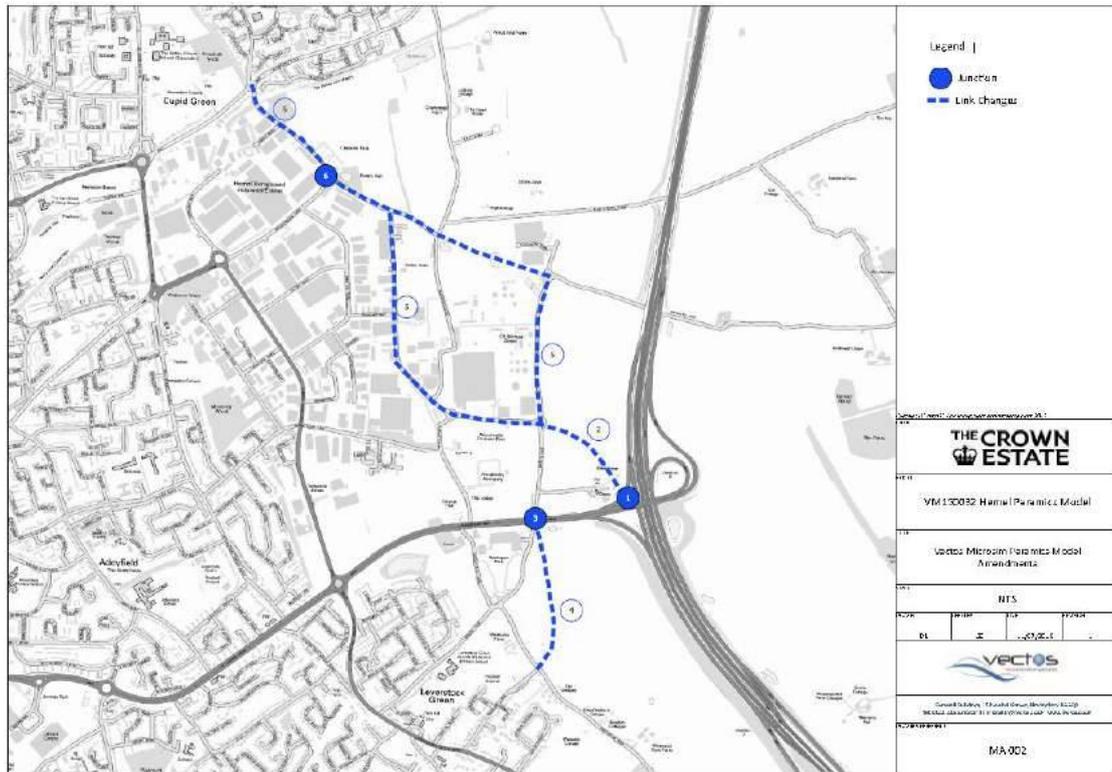
Do Something Network Improvements

7.16 The following is a list of schemes within the Do Something network:

- Reconfiguration of M1 Junction 8 (Scheme 1).
- A new link from M1 J8 to Boundary Lane (Scheme 2).
- Widening and enhancements of Breakspear roundabout (Scheme 3).
- Introduction of a new link from the Breakspear Way roundabout to Westwick Row/A4147 to the east (Scheme 4).
- Update to Green Lane, Boundary Way and Three Cherry Tree routes inclusive of junction improvements along the route (Scheme 5).
- Signalisation of the Swallowdale Lane/Three Cherry Lane junction (scheme 6).

7.17 An overview of the scheme locations is provided within the **Image 2** below.

Image 2: Do Something Scheme Locations



Do Something Plus Network Amendments

- 7.18 Following model runs with the Do Something network improvements included, the areas where residual congestion was most severe were identified. In response to the impacts within these areas the network was amended in order that the vehicle flows could be better accommodated.
- 7.19 The changes applied within the model network ranged from identifying and incorporating a physical change in the model network to reflect the delivery of scheme proposals to the reconfiguration of model calibration parameters within specific areas to ascertain the likely impact that will occur on the rest of the network as a result of delivering focussed mitigation.
- 7.20 Changes to the calibration parameters focused on either the introduction of visibility and/or lower gap acceptance parameters, both of which increase throughput and enable the ‘objectives’ of a scheme to be incorporated within the model without, at this stage, having to fully determine the precise composition of every scheme. This is common practice at this stage of strategic assessment for a SLP.

7.21 The locations in which schemes have been proposed has been illustrated within **Image 3** whilst an overview of the principles behind the proposals and/or network changes has also been documented within the accompanying **Table 7.4**.

Image 3: Proposed Scheme Locations



Table 7.4: Scheme Proposals

Ref	Location	Scheme Principles
1	Three Cherry Lane to B487 Hemel Hempstead Road	Delivery of a Northern Link Road.
2	New link/B487 Hemel Hempstead Junction	New junction to facilitate improved access to the sites to the north as well as connecting the northern link road to the existing highway network.
3	A414 Breakspear Way/Green Lane Roundabout	Widening of A414 approaches to increase throughput.
4	Swallowdale Lane/Three Cherry Lane	Further signal optimisation compared to the Do Something scenario. Most likely triggered by the change in traffic patterns induced by the inclusion of the northern link road.
5	A4251 London Road/Fishery Road	Improving capacity for Fishery Rd SB traffic, most likely deliverable through signalisation.
6	Boundary Way/Maxted Road	Improving capacity for traffic approaching via Boundary Way, potentially achievable via reconfiguration to mini-roundabout, alternatively measures to improve visibility may be sufficient. Signalisation may be considered as a last resort.
7	Marlowes/Queensway	Measures required to prevent junction blocking in part due to junction configuration but also due to nearby pedestrian crossings, possible consideration towards full signalisation. Likely to be delivered in unison with schemes 10 and 13.
8	B487 Redbourn Road/Shenley Rd	Improving capacity for traffic approaching via Shenley Road and improved facility for traffic turning right into Shenley Road. Most likely achieved through signalisation.
9	Heath Lane/St Johns Lane	Right turn ban from St Johns Lane to prevent 'rat-running' in response to queue propagation back from the Magic roundabout junction.
10	Warners Road/Leighton Buzzard Rd	Improving capacity for traffic approaching via Leighton Buzzard Rd via junction widening to allow two lanes straight on, introduction of yellow boxes on B487 (W) to prevent queues blocking back into junction, scheme linkage to 7 and 13 is essential.
11	A414 St Albans Rd/Bennetts End Rd	Improving capacity for vehicles approaching from Bennett's End Rd, initially achieved via delivery of segregated left turn lane from Bennetts End Rd to A414 to improve throughput.
12	Shenley Road/Redbourn Road	Improving provision for traffic travelling NB across the junction via two lanes and widening of approach from Shenley Rd.
13	High Street/Queensway	Widening to enable better provision for right turn into High street from Queensway. If schemes 7 or 10 result in signalisation then consideration may be given to signalising this junction and/or restricting movements from Alexandra Road.
14	Heath Lane/Station Road	Improving capacity for Heath Lane SB traffic via junction widening to provide left and right turn lane, possible ban of left turn from Heath Lane to prevent rat running to avoid queue on St Johns Road.
15	Link Road/Redbourn Road widening	Improving junction capacity through widening where possible
16	A414 St Albans Road/Maylands Avenue	Junction widening and potential enhancements via the provision of signal control.

7.22 The amendments to the model within the Do Something Plus are, at this stage, intended only to replicate the principles/concepts behind the delivery of schemes. The precise details of the schemes will be developed in due course.

Model Scenarios

7.23 Upon completion of the scenario amendments and demand forecasting, the following HHPM scenarios were assessed:

- 2021 HHPM Do Minimum
- 2031 HHPM Do Minimum
- 2031 HHPM Do Something
- 2031 HHPM Do Something Plus

7.24 It was not considered necessary to assess the Do something or Do Something Plus schemes within the 2021 scenario network since it is highly unlikely that the need for these schemes will emerge by 2021.

Results Analysis

7.25 The reporting of results has focussed on two key performance indicators, specifically:

- **Average Journey Time** – The average time it takes for a trip to be completed within the model period
- **Trip Completion Ratio** – The proportion of the assigned demand that results in a completed trip within the model period.

7.26 Average journey time provides a sensible benchmark for comparing the performance of different scenarios. However, the trip completion information should also be assessed as this provides an indication of how many trips contributed to the calculation of the average delay.

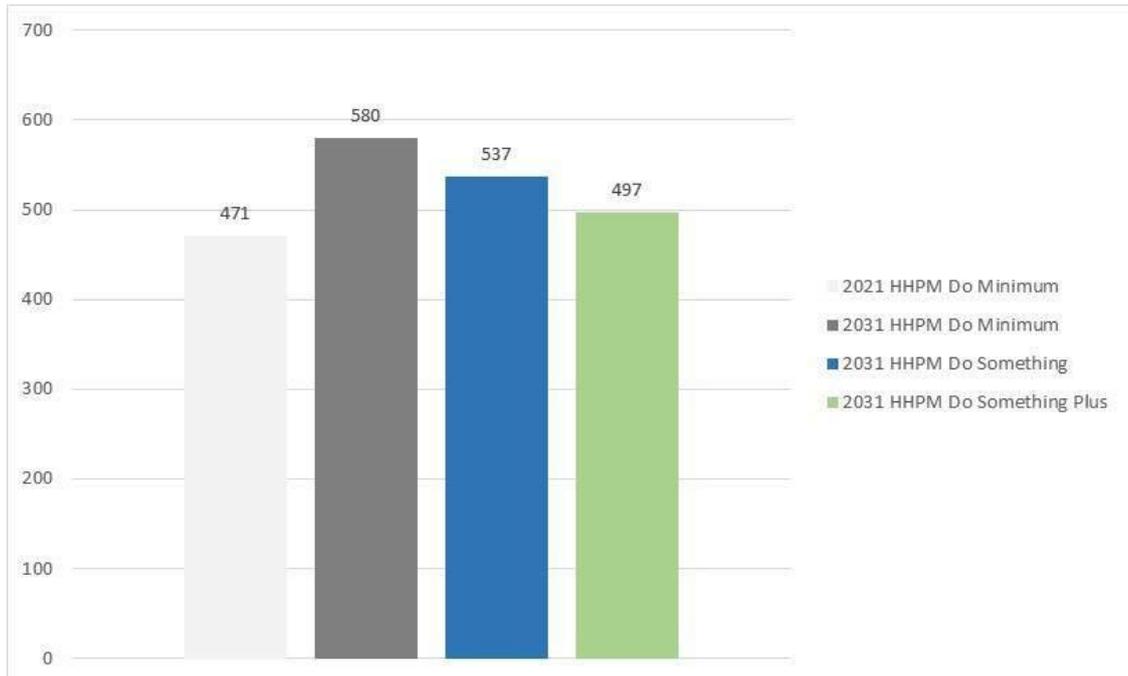
7.27 The average journey times for the AM period, extracted for all modelled scenarios, has been illustrated within **Graph 1** on the following page.

7.28 The results presented within **Graph 1** indicate that, in the 2031 Do Something Scenario, there are increases in journey time across the network although it is questionable whether

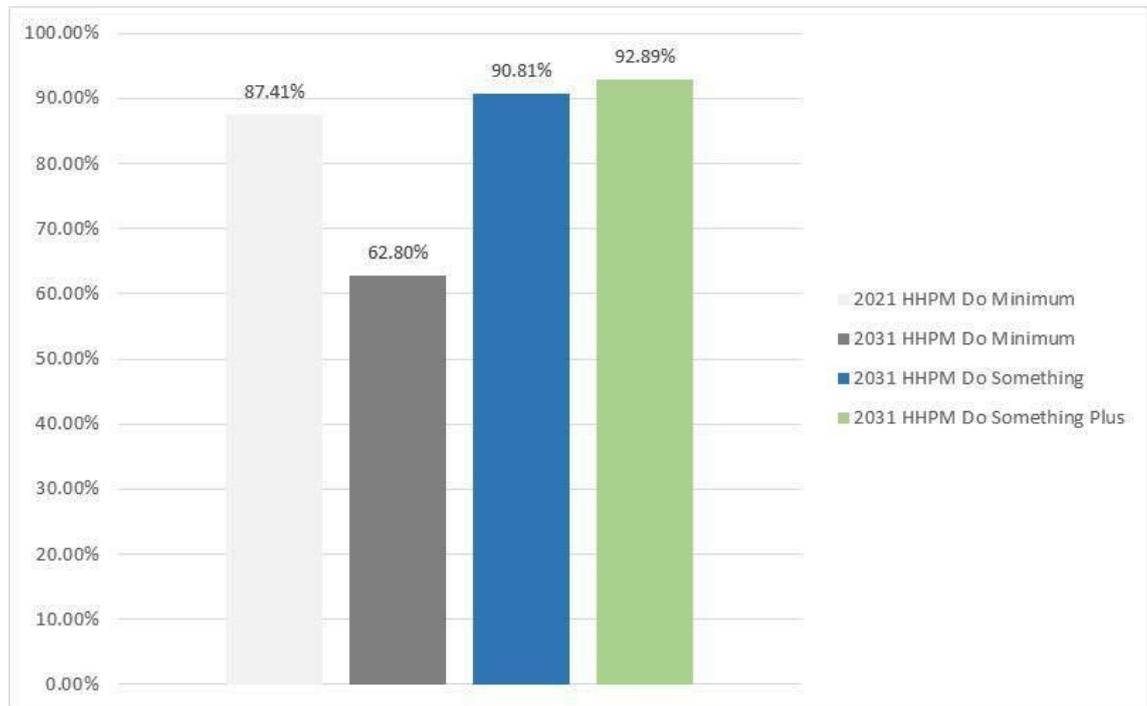
an increase of circa 14% would be considered severe. Nevertheless, introduction of the Do Something Plus measures allow the overall level of network performance to be maintained with only a marginal (5%) increase in journey times.

7.29 The analysis of the completed trips that have been calculated within each of the model scenarios is presented within **Graph 2** on the following page.

Graph 1: Average Journey Time (seconds) HHPM 2021 vs. 2031



Graph 2: Trip Completion Ratio 2021 vs. 2031



7.30 **Graph 2** indicates that within the Do Something and Do Something Plus scenarios the trip completion remains at 90% or higher in the 2031 scenarios. When reviewing the trip completion ratio within the Do Something Plus scenarios, there is an additional 2% demand accommodated within the 2031 network as a result of the extra schemes included within the model network.

Summary

- 7.31 Analysis of the average delays extracted from the model scenarios reveals that there are likely to be significant increases in journey times experienced within the study area if the developments are not accompanied by a highway mitigation strategy.
- 7.32 Analysis of the Do Something and the Do Something Plus scenario performance reveals that the mitigation measures included within the model networks will increase the volume of trips which can be accommodated within the period and minimise the increase in delays that will be experienced as the additional developments are included within the model network.
- 7.33 Analysis of the Do Something Plus scenario performance reveals that by 2031 there will be only a minor residual impact on the model network (5%).

Conclusions

- 7.34 Based on the analysis completed using the HHPM model thus far it is reasonable to conclude the following:
- That the highway mitigation measures included within the analysis of the Do Something scenario, and specifically the reconfiguration of M1 Junction 8, will significantly improve the network conditions and serve to accommodate a substantial element of the growth in traffic volumes predicted as a result of the proposals within the St Albans SLP at east Hemel and other growth proposed within Hemel Hempstead (inclusive of approximately 8500 jobs predicted to occur between 2015 and 2031 as identified within the TEMPRO database).
 - That the additional measures identified within the Do Something Plus scenario will likely ensure that the housing levels identified for delivery up to 2031 can be accommodated with minimal additional impacts.
- 7.35 The assessments reported above will continue to be refined using further enhancements to the HHPM and this will allow the detail of the junction improvements and their timing to be confirmed. However it is considered that at a strategic level the analysis within this report demonstrates that the SLP in the Hemel Hempstead area is sound from a transport perspective.

8 SUMMARY AND CONCLUSIONS

8.1 This strategy report has considered proposals for a residential led, mixed use, scheme of up to 2,500 units and circa 200,000 sqm of employment space on land to the east of Hemel Hempstead known as east Hemel.

A Suitable Location

8.2 There are significant benefits to locating a residential led, mixed use development at East Hemel. In particular:

- It is located adjacent to one of Hertfordshire's Strategic Employment Site's – Maylands Industrial Estate;
- Facilities including primary and secondary education, significant employment land and local centres will be provided on site;
- It is located close to the Nickey Line with excellent walking and cycling connections towards Hemel Hempstead town centre and Harpenden;
- The balance of residential and employment allows efficient bus services to be run; and
- Infrastructure can be provided in a planned and phased manner.

A Transport Vision

8.3 The transport vision for East Hemel is as follows:

"To create a development where people have the opportunity to undertake many day to day activities within the site and the choice of sustainable transport modes for travel within and outside the site. To provide transport infrastructure and service enhancements that bring forward improvements that benefit local communities in St Albans and Dacorum. To introduce travel planning that acts as a catalyst to shape the habits of the local community."

A Sustainable Transport Strategy

8.4 East Hemel will deliver a comprehensive Sustainable Transport Strategy. The primary elements will be:

8.5 **Walking and Cycling Links:** Good quality links will be provided both within the site and to the main origins/destinations within Hemel Hempstead and St Albans. The site is located

adjacent to The Nickey Line, an off road National Cycle Route. There are wider studies in progress to improve cycle connections to St Albans.

- 8.6 **Bus Strategy:** Given the size of the proposals and the balance between residential and employment uses it will be possible to provide a comprehensive bus service to and within the site. Much of this provision will be through extension of the services. Services will be able to carry employees and residents of the site which will assist in providing demand in both directions.
- 8.7 **Rail Strategy:** The station is 5km from the east Hemel area. Links will be provided by bus routes and cycle routes (including the Nickey Line).

An Access and Highway Improvement Strategy

- 8.8 A comprehensive access strategy has been developed for the site which involves a north-south spine road and connections to the existing highway network to the west as well as to the planned Spencer's Park development.
- 8.9 A number of options have been examined to provide additional highway capacity in the area including enhancements to the Breakspear roundabout and creating a new link into the Maylands/East Hemel area. Strategic testing has demonstrated that there are a range of solutions to cater for development through to the end of the plan period

Stakeholder Consultation

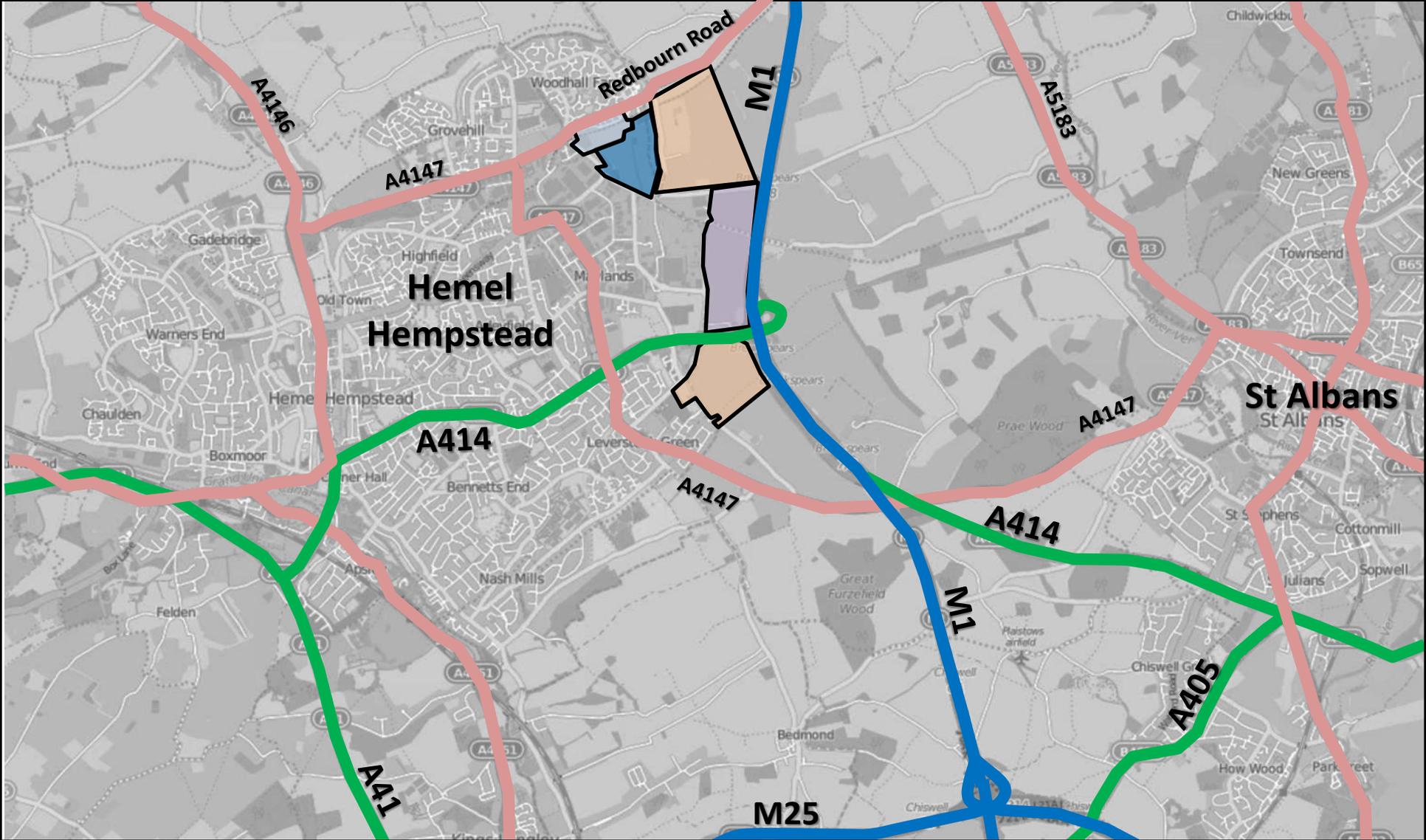
- 8.10 Extensive discussions have been held with the transport stakeholders in part through the Maylands Growth Corridor Study Project Group and Vectos will continue to work with them to refine the transport strategy and assess the impacts in greater detail.
- 8.11 None of the stakeholders has raised any fundamental issues with the allocation of East Hemel for a mixed use development or of the emerging transport strategy.

Conclusions

- 8.12 This report demonstrates that East Hemel is a suitable location for a major residential led, mixed use development on account of its proximity to employment, the proposed Sustainable Transport Strategy and the potential for planned and co-ordinated highway

infrastructure improvements. From a transport perspective, taking into account the evidence available, the site is suitable for allocation in the St Albans Local Plan.

FIGURES



Key:

- Residential Development Parcels
- Commercial Development Parcels
- Spencer's Park Phase 1
- Spencer's Park Phase 2

The Crown Estates

East Hemel Hempstead

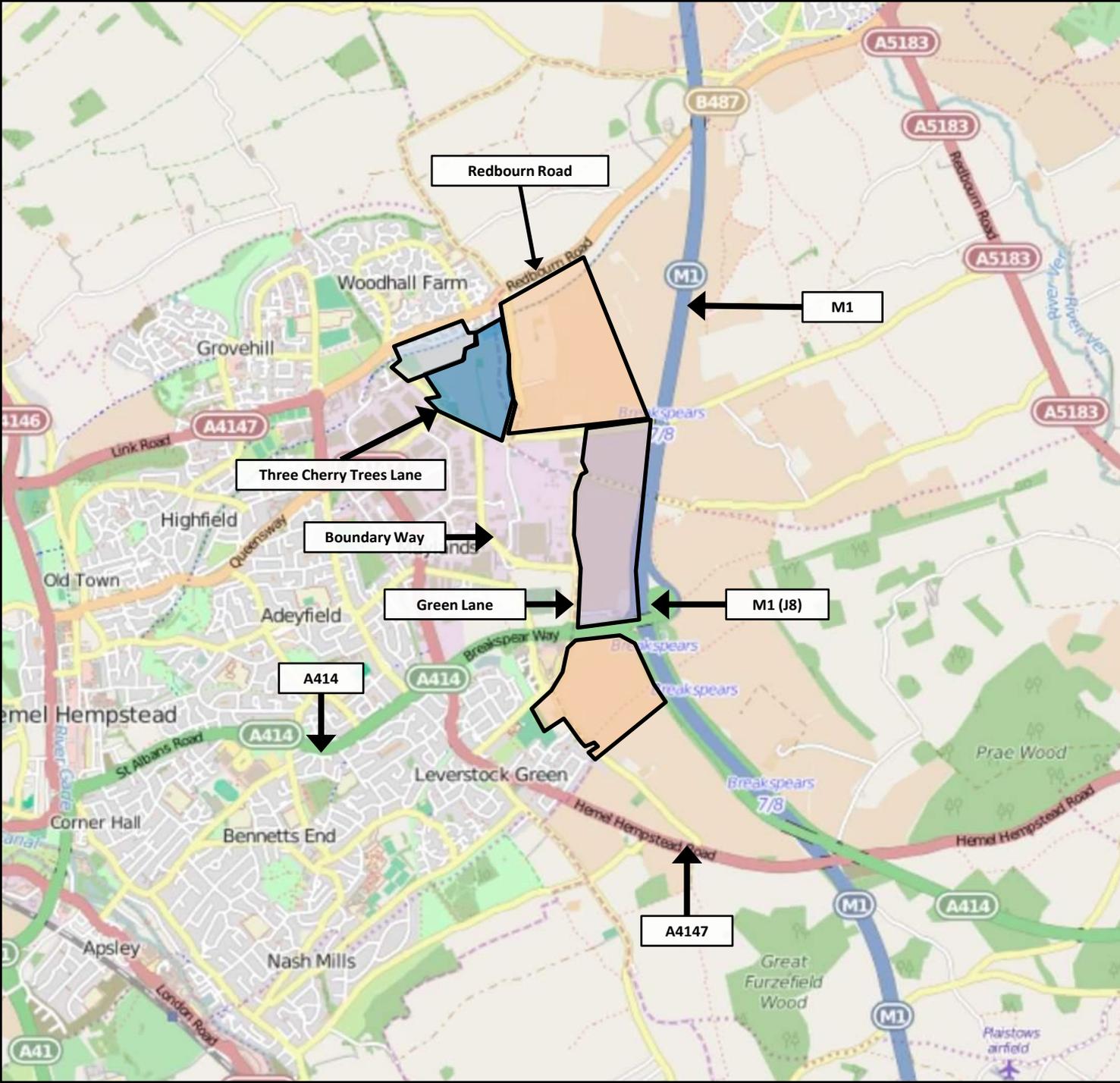
Site Location Plan (Strategic Context)



Network Building, 97 Tottenham Court Road, London W1T 4TP
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DRAWING REFERENCE: **Figure 1**



- Key**
- Residential Development Parcels
 - Commercial Development Parcels
 - Spencer's Park Phase 1
 - Spencer's Park Phase 2

The Crown Estate

East Hemel Hempstead

Site Location Plan
(Local Context)

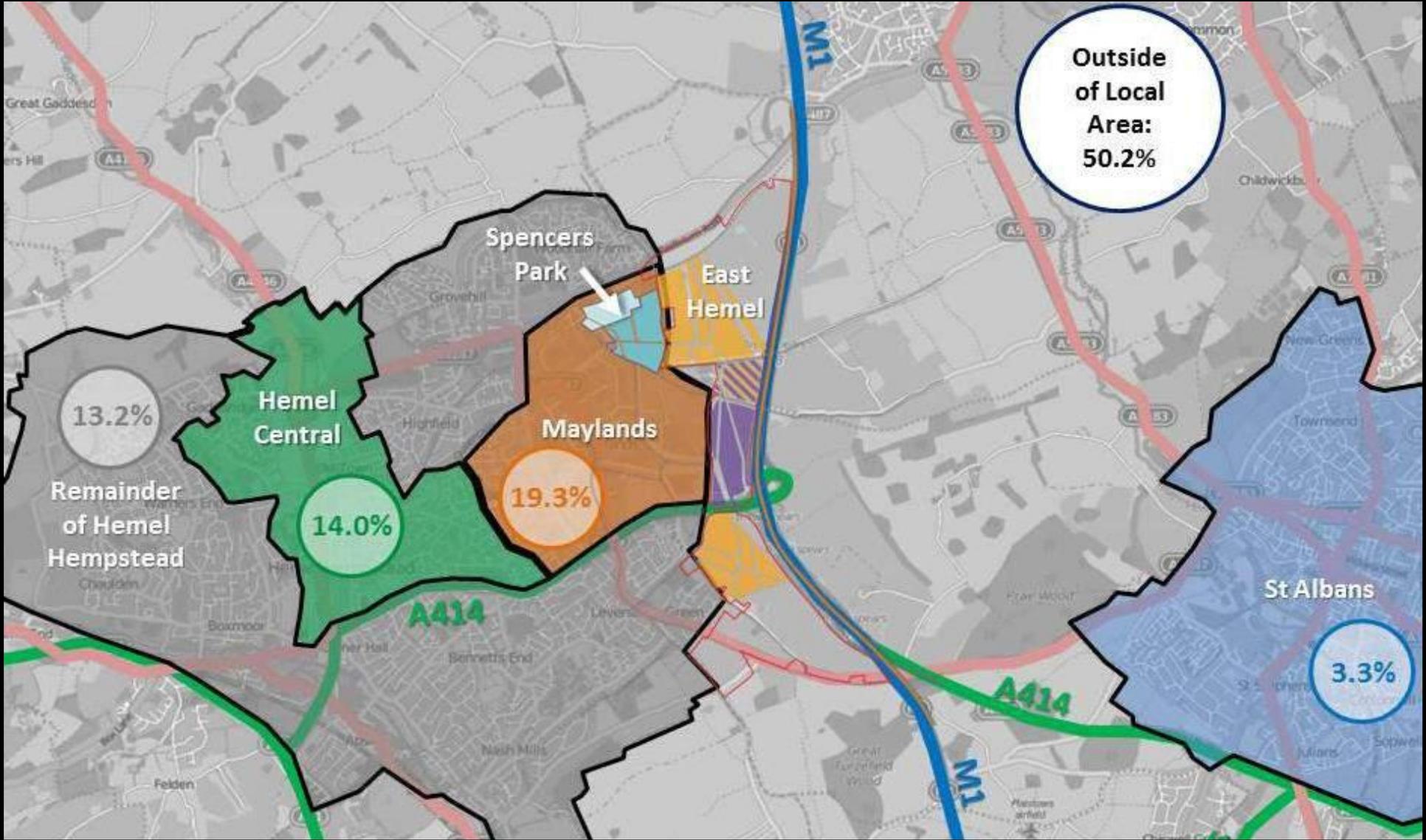
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DRAWING REFERENCE: **Figure 2**



Key:

The Crown Estates

East Hemel Hempstead

Travel Patterns (Journey to Work)



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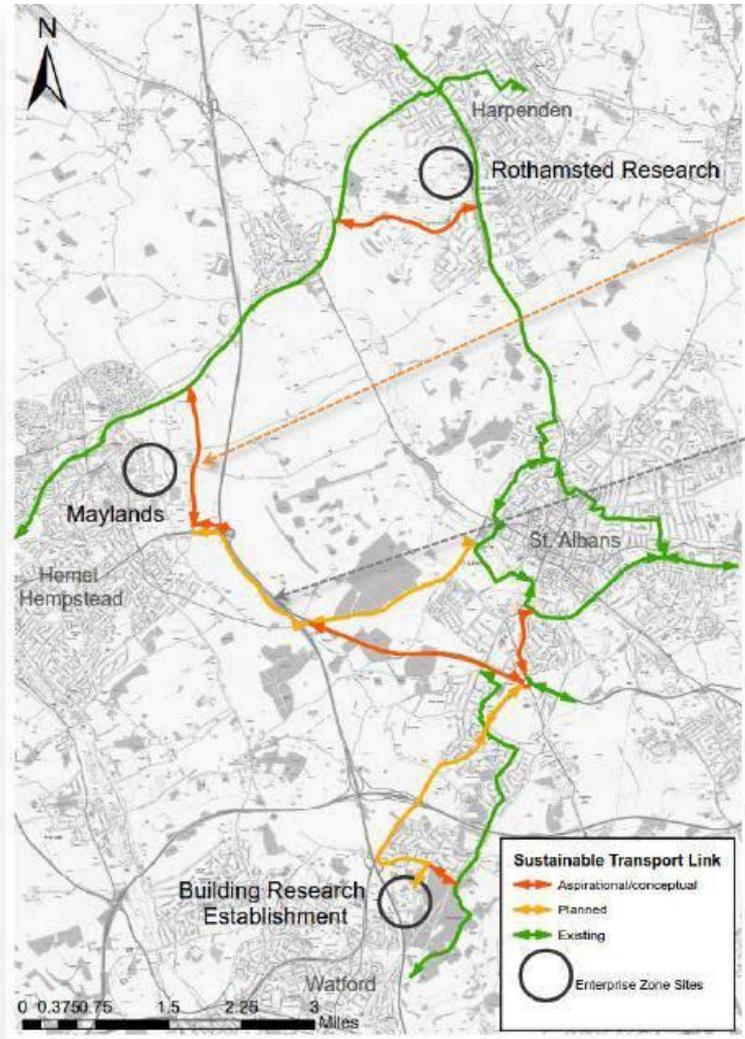
13/07/16

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NTS

DRAWING REFERENCE:

Figure 3



SC5 Nickey Line
'branchline'
 (alongside SC2
 N-S spine road)

HCC-led project
 A4147-A414T(M1)-A414
 Breakspear Way cycle
 link



Maylands Study – SC3-6

May 5, 2016

Key:

The Crown Estates

East Hemel Hempstead

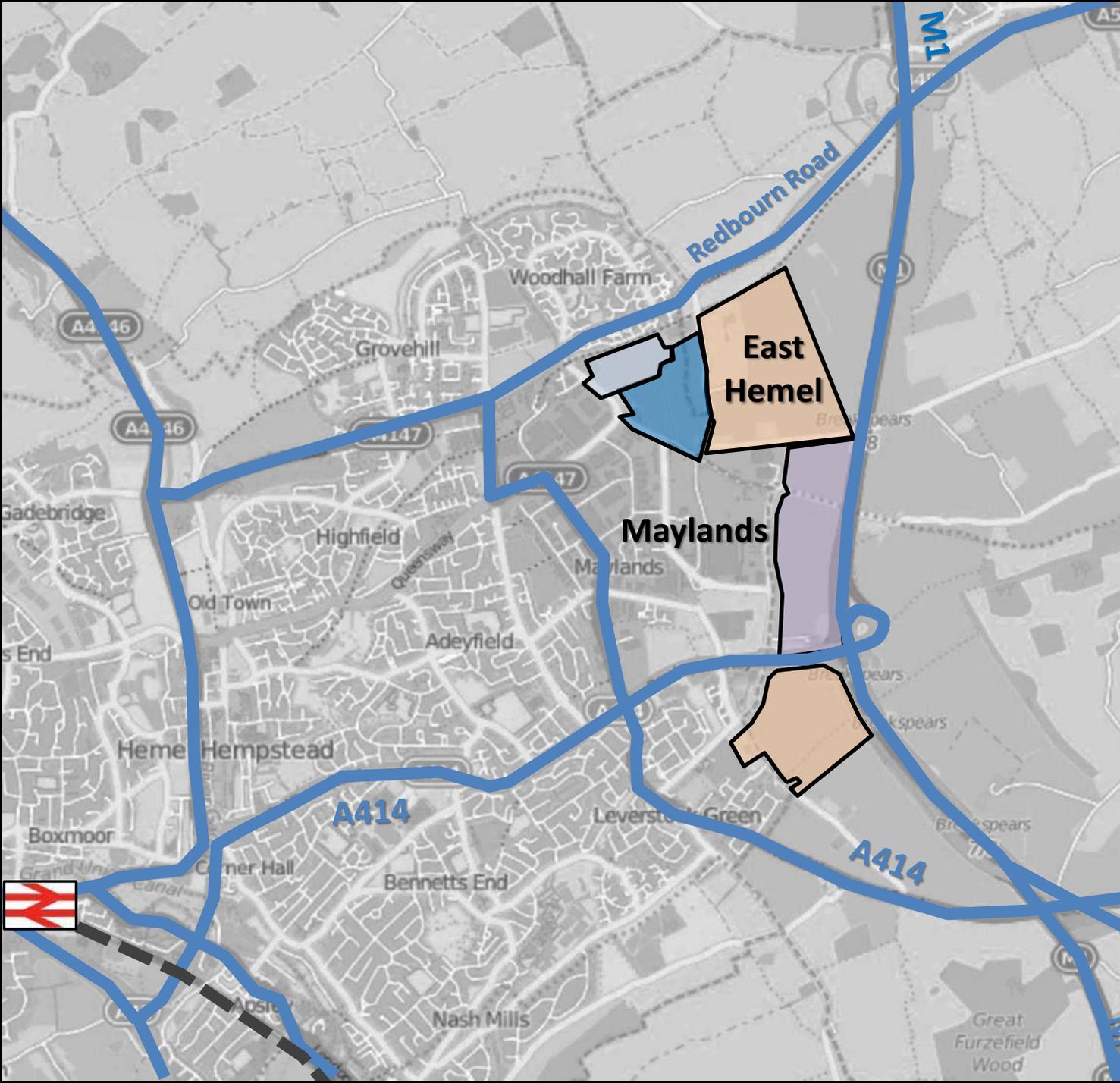
A4147-A414 Cycle Linkage



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DRAWN: LK	CHECKED: DB	DATE: 13/07/16	SCALE: NTS
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DRAWING REFERENCE: **Figure 4**



- Key**
- Residential Development Parcels
 - Commercial Development Parcels
 - Spencer's Park Phase 1
 - Spencer's Park Phase 2

The Crown Estate

East Hemel Hempstead

East Hemel Draft Allocation
Land Parcels

SCALES: NTS

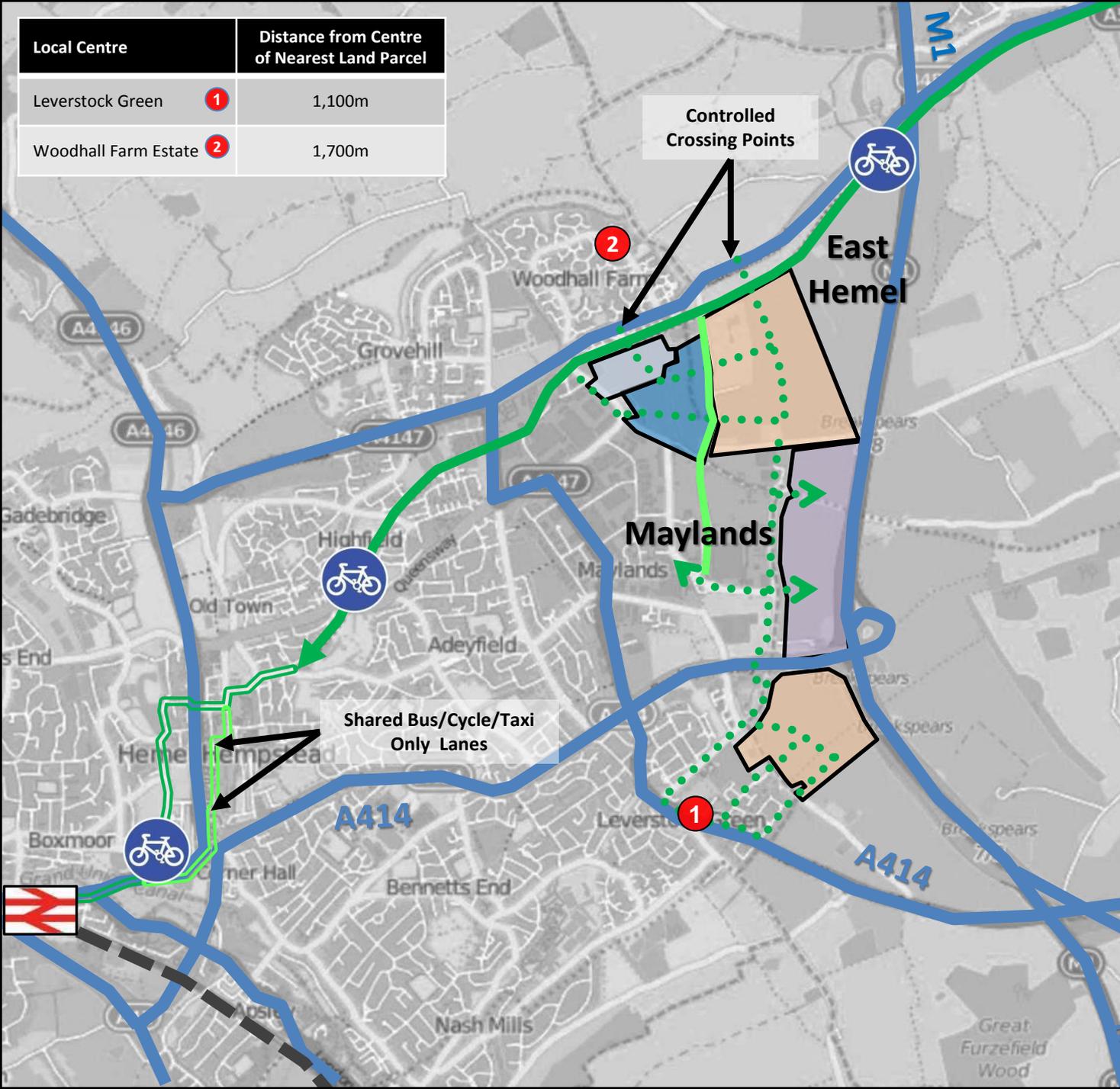
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LK	MDC	13/07/16	.



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DRAWING REFERENCE: **Figure 5**

Local Centre		Distance from Centre of Nearest Land Parcel
Leverstock Green	1	1,100m
Woodhall Farm Estate	2	1,700m



- Key**
- Residential Development Parcels
 - Commercial Development Parcels
 - Spencer's Park Phase 1
 - Spencer's Park Phase 2
 - Proposed Ped/Cycle Access
 - Nickey Line – Traffic Free Route
 - On-street Cycle Route on Quieter Roads (between Nickey Line & Hemel Station)
 - Alternative Cycle Route with Bus/Cycle/Taxi Only Sections (between Nickey Line & Hemel Station)
 - Creation of 'quietways' on some local roads (inc. Cherry Tree Lane and Buncefield Lane)

The Crown Estate

East Hemel Hempstead

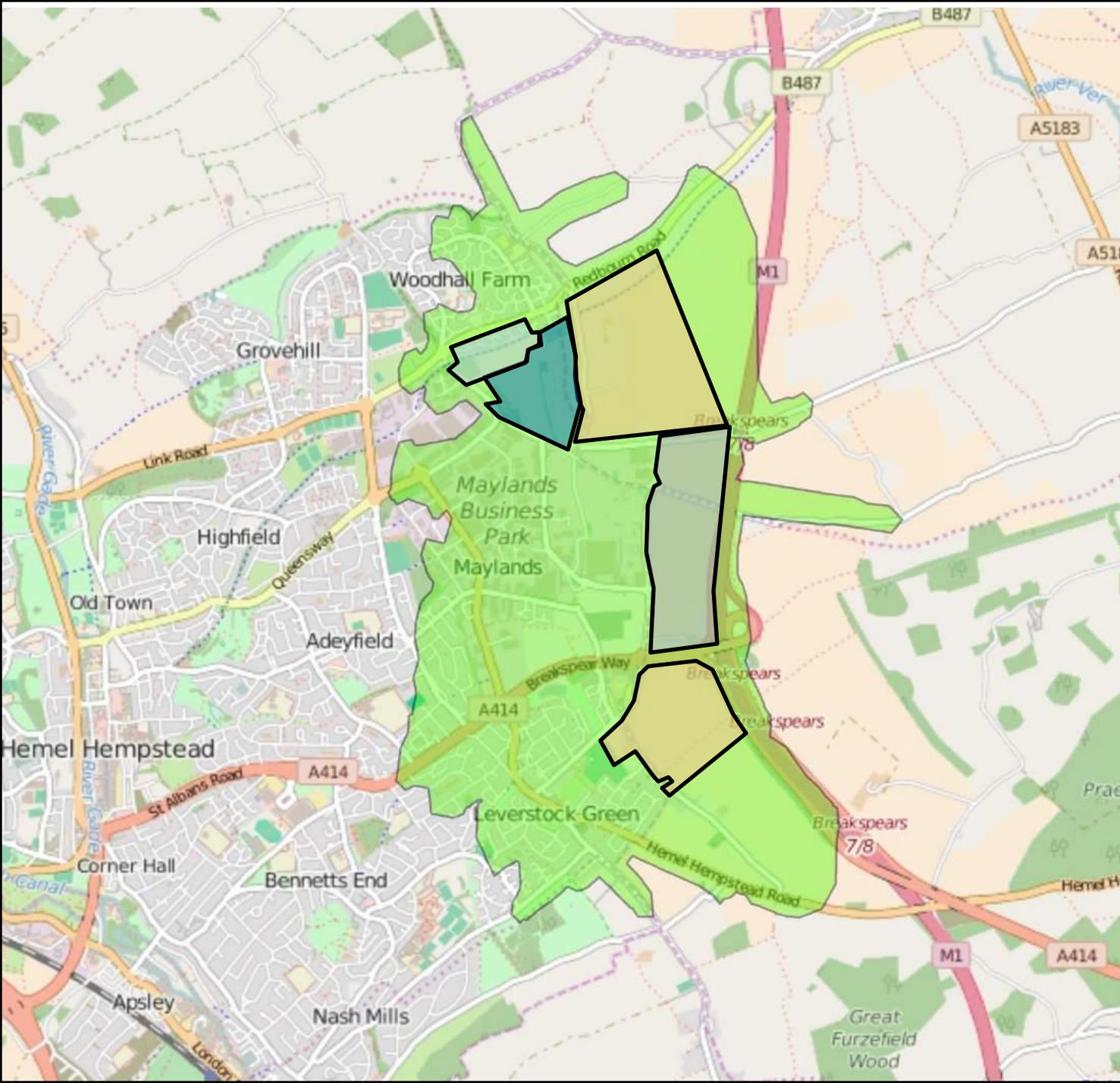
Walking and Cycling Strategy

SCALE:	NTS		
DRAWN:	CHECKED:	DATE:	REVISION:
LK	MDC	13/07/16	.



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DRAWING REFERENCE: **Figure 6**



Key
 2km Walking Isochrones

The Crown Estate

East Hemel Hempstead

2km Walking Isochrones

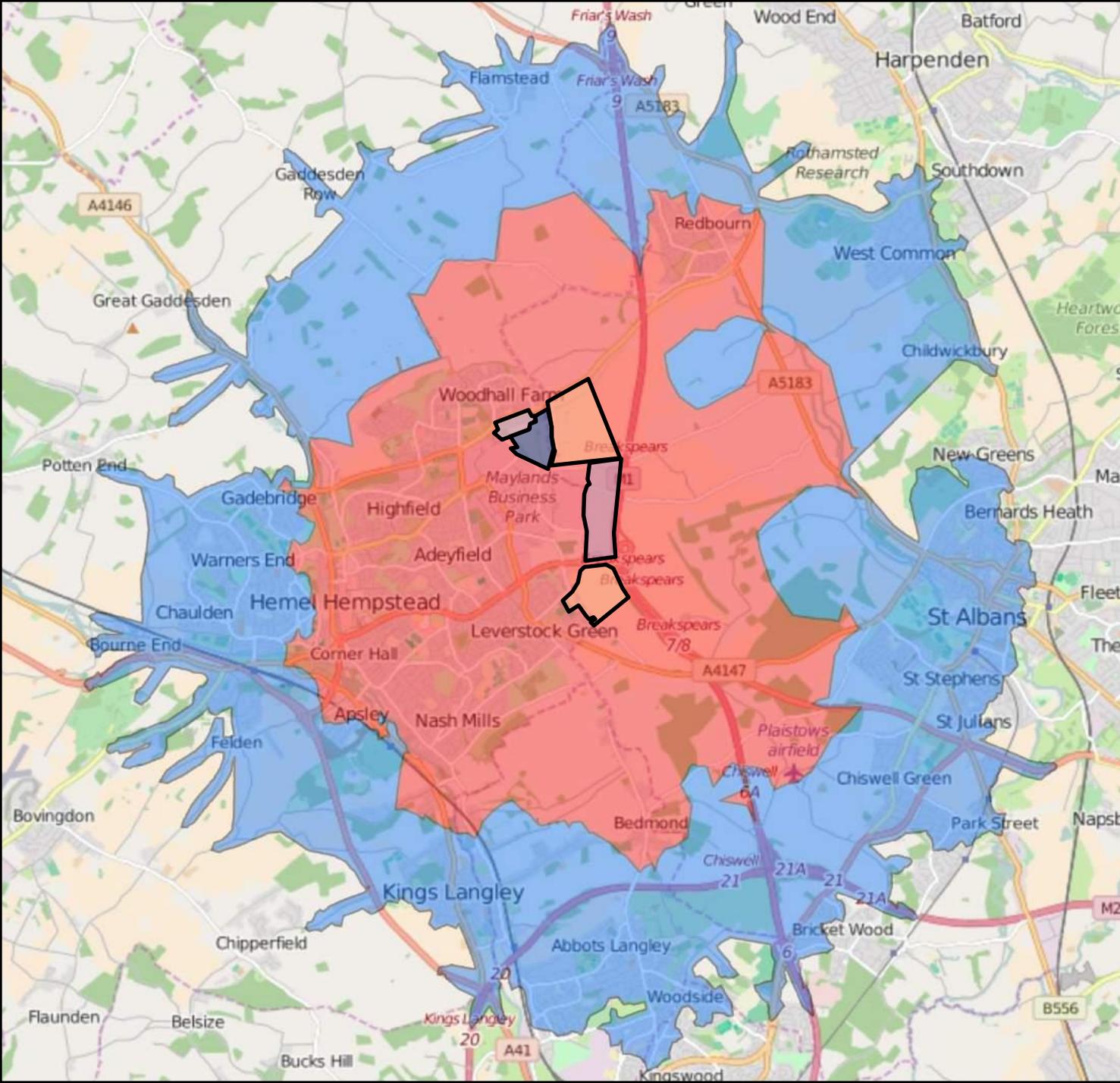
SCALES:		NTS	
DRAWN: LK	CHECKED: MDC	DATE: 13/07/16	REVISION: .



transport planning specialists

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DRAWING REFERENCE: **Figure 7**



Key

- 5km Cycling Isochrones
- 8km Cycling Isochrones

The Crown Estate

East Hemel Hempstead

5km and 8km Cycling Isochrones

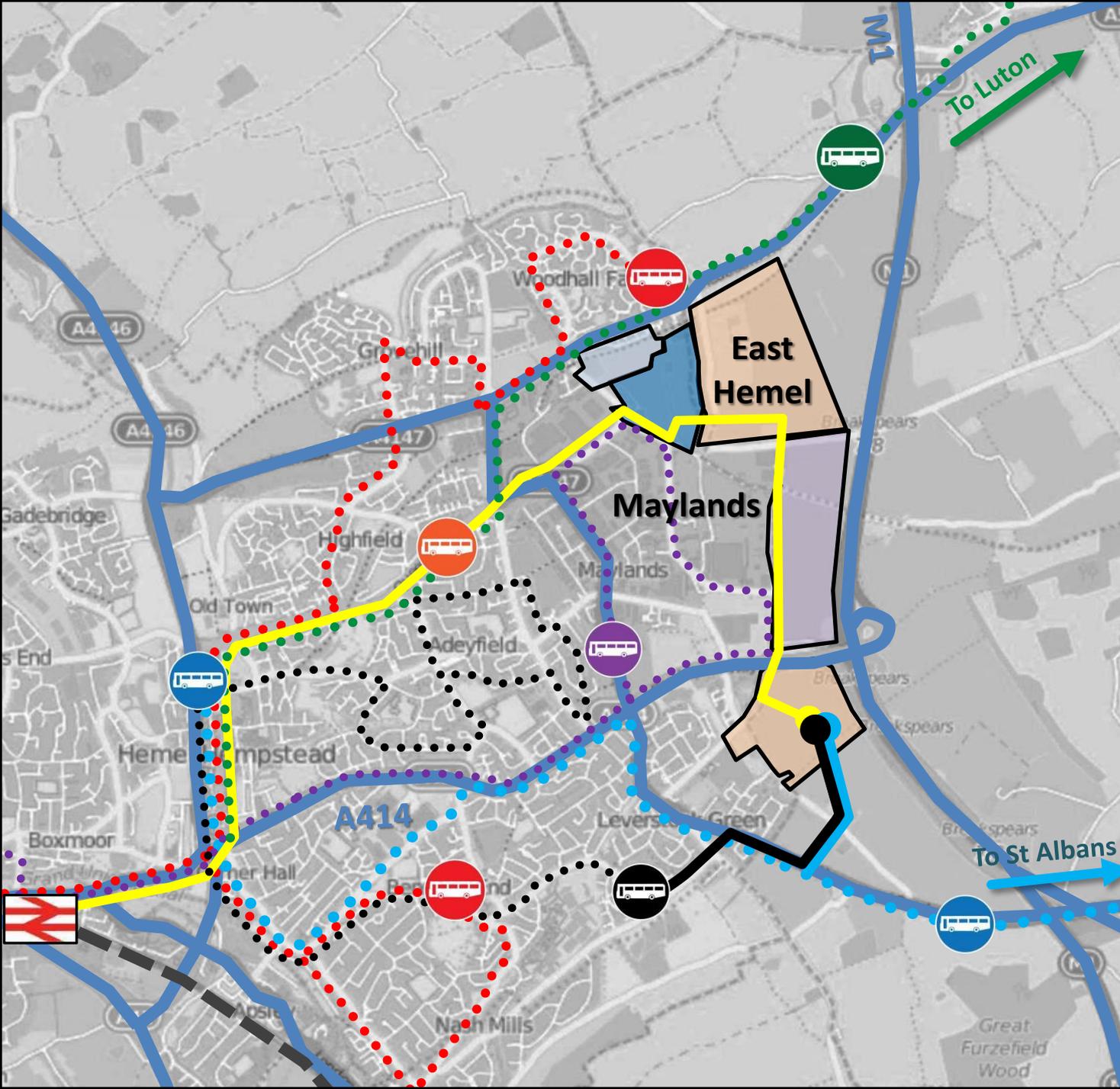
SCALES:		NTS	
DRAWN:	CHECKED:	DATE:	REVISION:
UK	MDC	13/07/16	.



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DRAWING REFERENCE: **Figure 8**



- Key**
- Existing Route 1
 - ▬ Proposed Route 1 Extension
 - Existing Route 2
 - ▬ Proposed Route 2 Extension
 - Existing Route 46
 - Existing Route 300 / 301
 - ▬ Proposed Route 300 / 301 Diversion
 - Existing Route ML1
 - ▬ Proposed New Bus Route
 - ▬ Railway Line
 - ▭ Hemel Railway Station

The Crown Estate

East Hemel Hempstead

Bus Strategy

SCALES: NTS

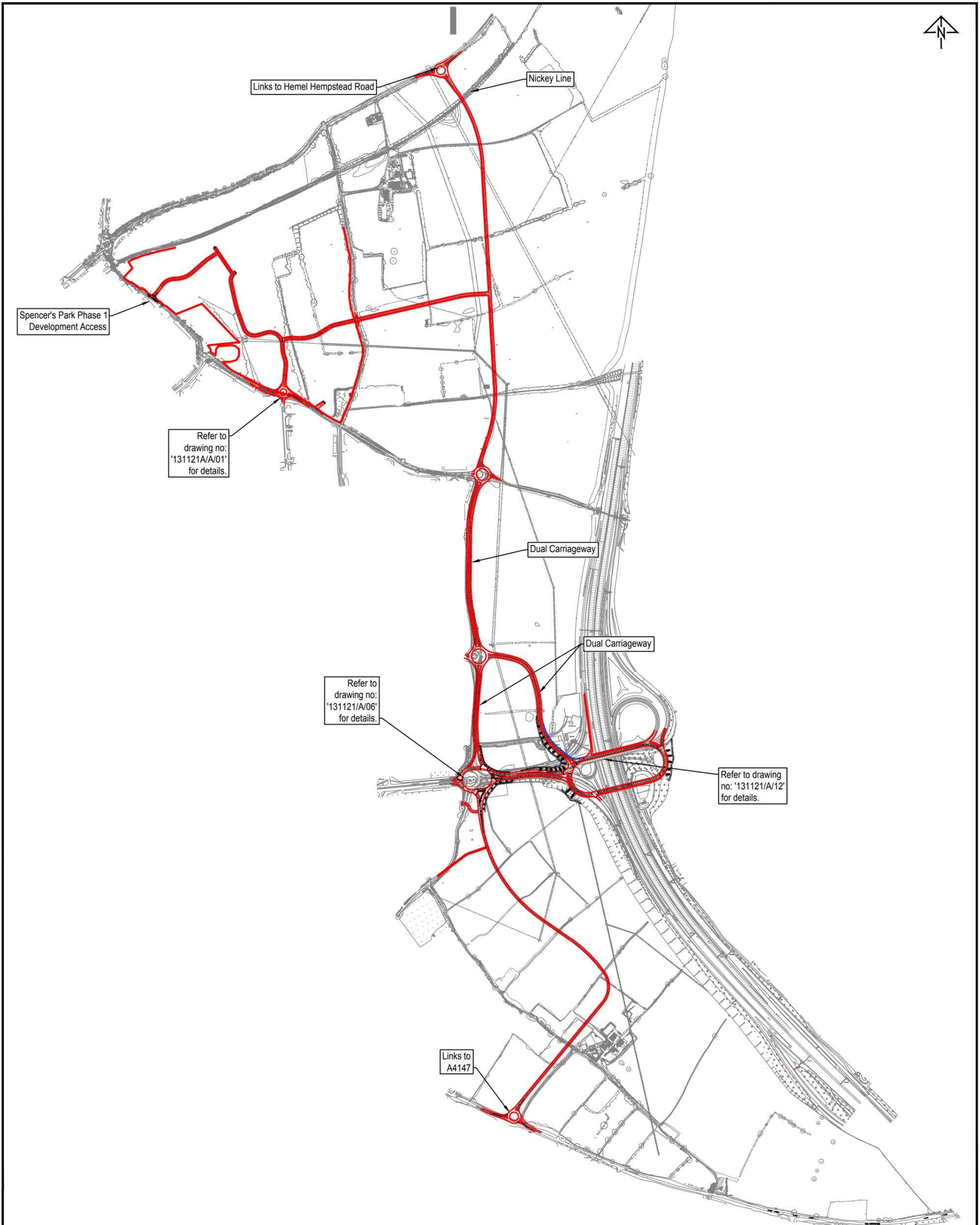
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DRAWING REFERENCE: **Figure 9**

APPENDIX A



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REV	DETAILS	DRAWN	CHECKED	DATE
A	Alignment to south updated to suit.	TF	DB	25.02.2016
B	Junction options and links updated.	TF	DB	18.04.2016
C	Junction options and links updated.	TF	DB	31.05.2016
D	Junction options and links updated.	TF	DB	19.07.2016

Notes:
 1. This is not a construction drawing and is intended for illustrative purposes only.
 2. White lining is indicative only.

DRAFT
 FOR INFORMATION ONLY

East Hemel Hempstead

Highway Design Scope
 (up to Planning Application)

DRAWN: TF	CHECKED: DB	DATE: 15.02.2016	SCALES: 1:12,500 at A3 (1:6250 at A1)
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DRAWING NUMBER: 131121/A/09	REVISION: D
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North West Harpenden

Appendix 5: Transport Extract of North West Harpenden Landowner/Developer Engagement Stage 2 Presentations and follow up report (PPC Nov 2015)

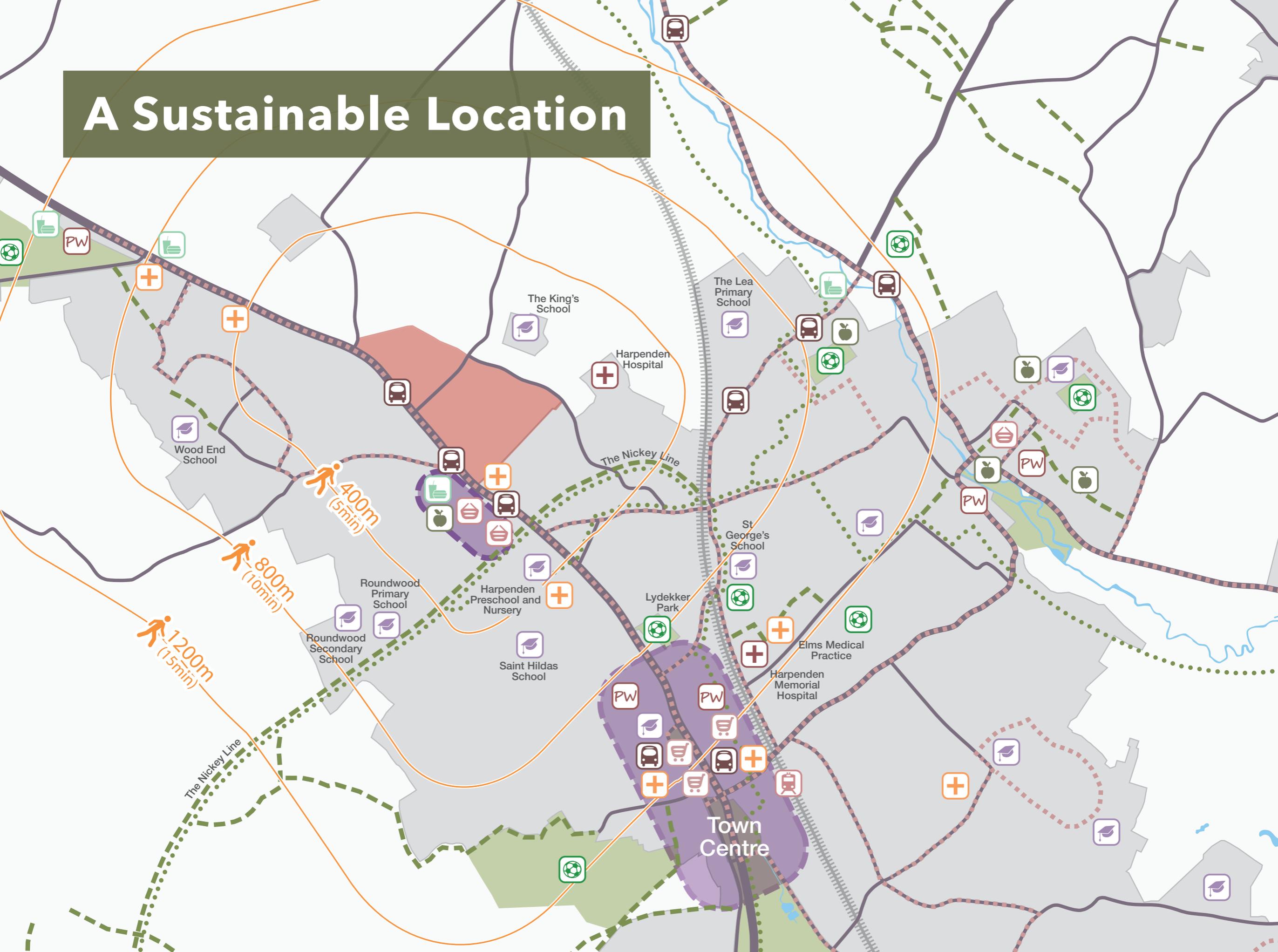
North West Harpenden

Commercial Estates Group
Legal & General Property



COMMERCIAL ESTATES GROUP

A Sustainable Location



Creating a Place

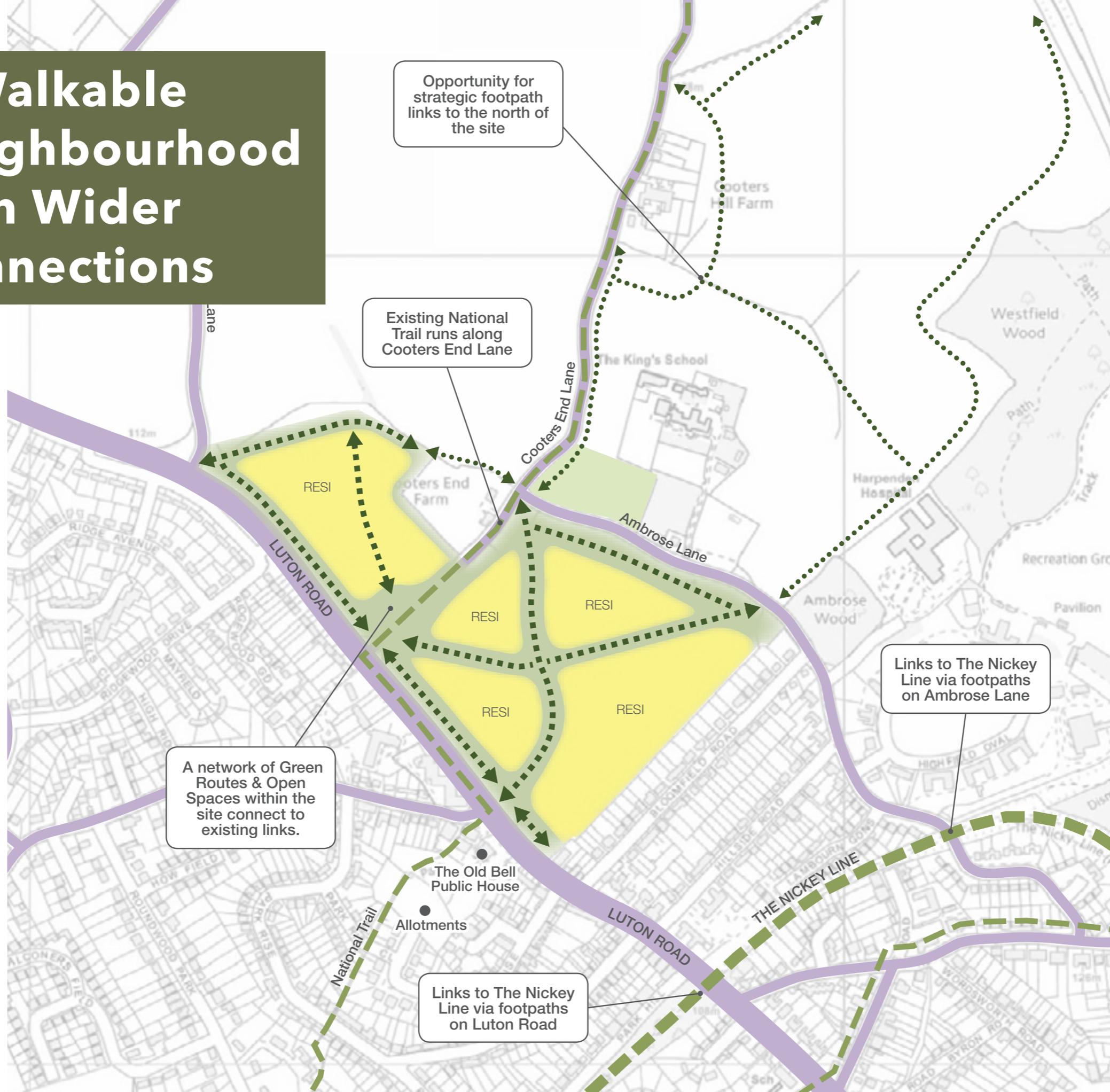


Original Concept



Evolving Concept

A Walkable Neighbourhood with Wider Connections



Opportunity for strategic footpath links to the north of the site

Existing National Trail runs along Cooters End Lane

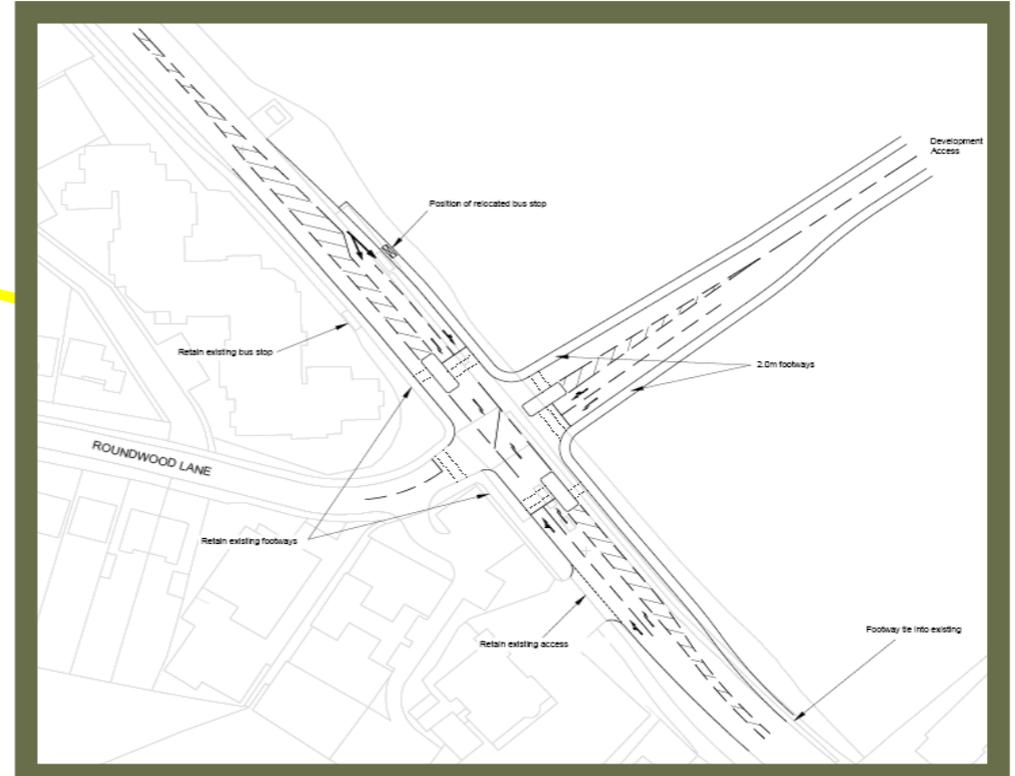
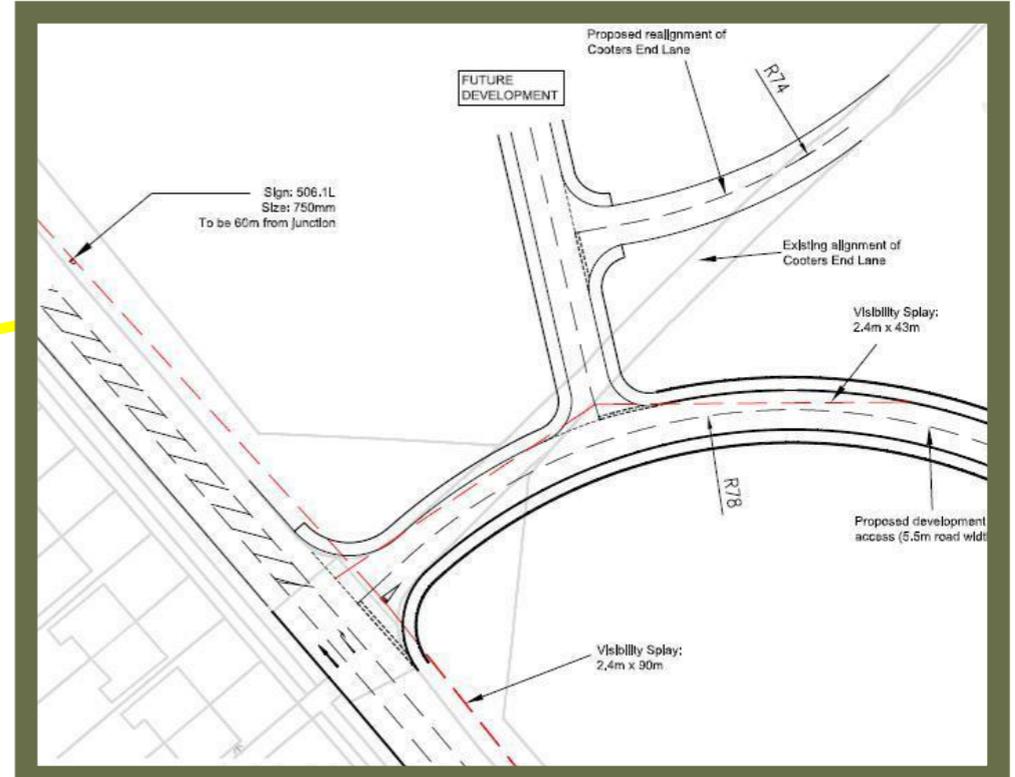
A network of Green Routes & Open Spaces within the site connect to existing links.

Links to The Nickey Line via footpaths on Ambrose Lane

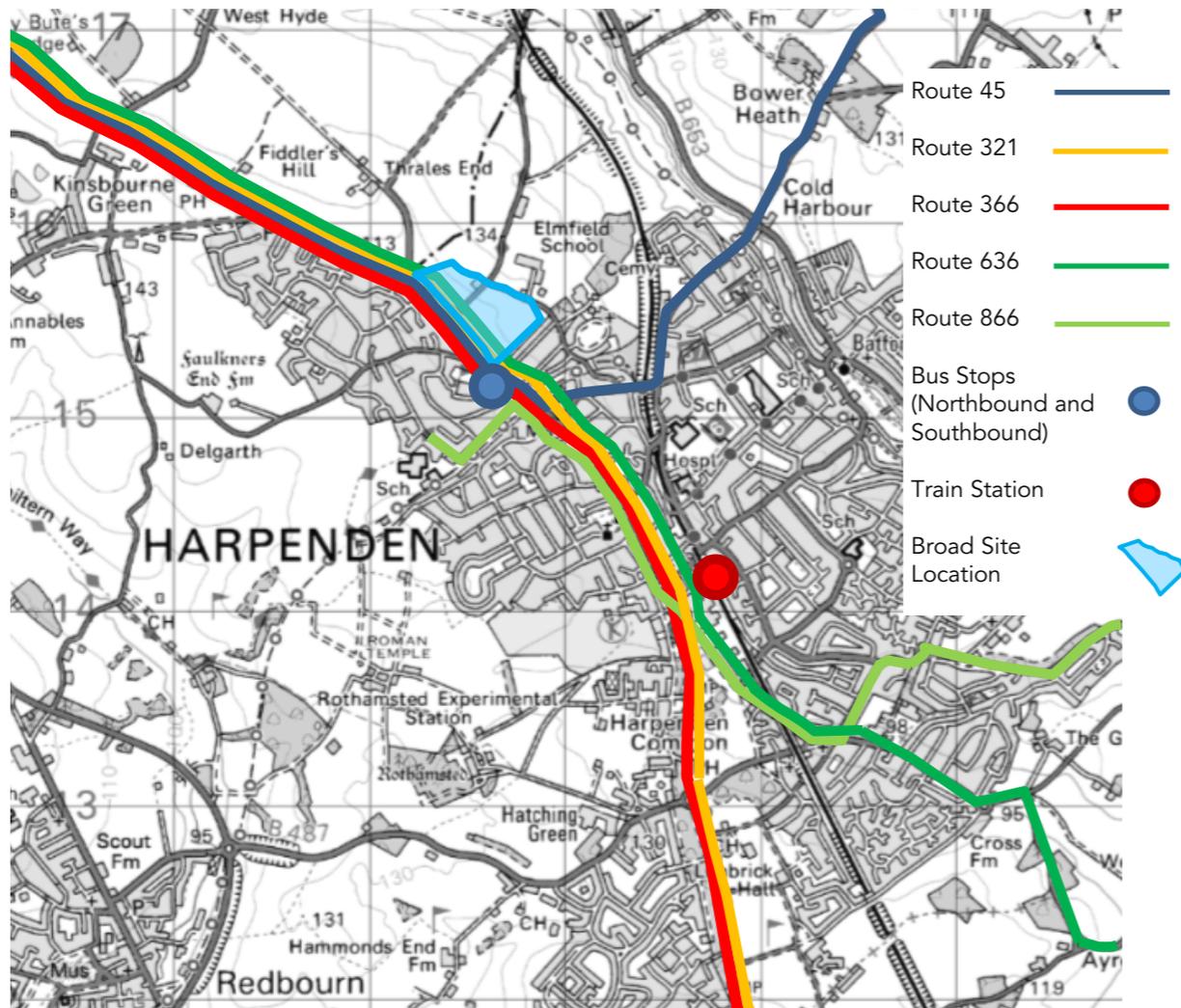
Links to The Nickey Line via footpaths on Luton Road



Site Access



Sustainable Transport



Cllr Julian Daly,
Executive Leader, Chair of Cabinet, Planning and Conservation Portfolio Holder and Chair of
Planning Policy Committee
St Albans City and District Council,
Civic Centre,
St Peters Street,
St Albans,
Hertfordshire, AL1 3JE

6 November 2015

Dear Cllr Daly

**St Albans City and District Council Draft Strategic Local Plan (Regulation 19 Draft)
Land North West of Harpenden (Broad Location S5)**

We write further to our meeting on Thursday 29 October 2015 at your request to confirm the community provisions and benefits which could be secured as part of residential development on the land North West Harpenden, including an initial total estimated value of these provisions which you require.

This letter should be read alongside the Stage 2 presentation already provided which sought to address the topics set out in the checklist at Appendix 4 of your invitation letter dated 10 August 2015, including in particular the illustrative layout options on slides 11 and 12 (unnumbered).

For the avoidance of doubt, the estimates below are based on a gross land area for built development of 18ha, as identified in the SKM Green Belt Review: Sites & Boundaries Study (Feb 2014, p67-70) and excluding Cooters End Farm and the listed buildings on Cooters End Lane as indicated by SKM.

Benefits of Development

In addition to 500 residential units including 200 (40%) affordable homes which could be provided in accordance with the district wide SHMA (December 2013) housing mix, or with an alternative mix to which maximises the potential and ability of the site to accommodate family housing, development in this broad location will incorporate high quality design and sustainability measures and can deliver a range of important community benefits which we identify in the following table.

Element	Estimated Value
Affordable Housing 200 (40%) affordable homes with a unit size mix that achieves the December 2013 SHMA mix estimate (21% 1 bed, 20% 2 bed, 51% 3 bed, 7% 4 bed from Table 6.5) provided to us at the Stage 1 briefing, or with an alternative mix to be agreed. Total estimated floorspace of c. 14,100 sqm	£53.1M
Provision of a primary school (c1FE) and sports pitches , with opportunity for dual use/community use and education facilities , plus land reserved for a second form of entry/nursery (to be discussed with the County Council)	£7M
A community building or service hub in a location to be agreed within the development but available to all or financial contribution to off-site community facilities	£500,000
Significant Improvements to pedestrian and cycle routes through Harpenden to the town centre and station (via Luton Road and Ambrose Lane/Sun Lane)	£500,000
Significant Improvements to footpaths and new rights of way to improve public access to the surrounding countryside and the value of the remaining Green Belt land in this area	£50,000
Major Highway Improvements to existing junctions	£600,000
Significant Public Open Space and Play Facilities within the development but available to all, totalling circa 5.5 ha	£2.5M
Community Orchard and Allotments , totalling circa 1 ha, including associated amenity facilities and parking/servicing provision, again within the development but with potential to be available to all	£500,000
Significant Contributions to Public Transport Services Improvements	£500,000
Estimated CIL Payment for Strategic Community Infrastructure (from 300 private dwellings)	£4.3M
Total Estimated Value	£69.55 M

We would expect these elements to be required through local planning policy and secured with an appropriate legal agreement, alongside other policy provisions to secure high quality design and placemaking which we support in principle.

Legal and General's Role in Delivering Affordable Homes

L&G has a strong track record of funding innovation when it comes to affordable housing delivery as evidenced in their 'Places for People' investment outlined in the Stage 2 presentation, which could be adopted on this project. L&G can provide professionally rented homes at both affordable (rather than premium open market) rents and as discount market rents, with a range of discounts to suit different levels of affordability. L&G will provide tenure blind homes in terms of appearance, and manage, hold and market any discount market rented housing in exactly the same way as it would the private rental housing.

The rental homes could deliver value for money for residents by providing excellence in accommodation, services and management standards. Residents will experience responsible landlord behaviour, providing charters that set out what residents can expect in terms of service levels and customer care. Leases will include terms that are fair, reasonable

and clear to the customer from the outset. There will be a range of suitable property sizes for a range of tenants, including families, sharers and individuals, reflecting the variety of modern demand. Tenants will be able to agree tenancies of between 1 and 5 years, providing them with security and flexibility.

We trust that this additional information is helpful in confirming and reinforcing the conclusion of your Officers' Development Site and Strategy Options Evaluation which assessed the sustainability of the Broad Locations (as was reported to the Planning Policy Committee on 3 July 2014) that the land North West of Harpenden is in a location which will promote and deliver a sustainable pattern of development as well as community provisions and benefits.

We hope to be able to work with you and your Officers to bring forward this residential development.

Yours sincerely,



Iain Macsween

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